

The Economic Way of Thinking in a Pandemic

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Externalities and O-Ring Economies

- The first lesson of the pandemic was the importance of externalities most obviously masks, vaccines but less obviously...
- During the pandemic trillions of dollars of economic activity came to rest on a handful of industries, most notably the vaccine industry.
- Since the vaccine industry could not possibly recoup the value of its investments to the larger economy, it made sense to subsidize the vaccine industry.



How to Subsidize: Operation Warp Speed

- The AHT team *quantified* benefits and costs (Billions<<Trillions!) and recommended to the US and British governments a plan to accelerate vaccine production by paying firms to build vaccine capacity before approval (i.e. subsidize at-risk capacity) and to guarantee sales of approved vaccines even if the pandemic subsided (an advance market commitment) (Ahuja et al. 2021, Snyder et al. 2023).
 - We also produced a portfolio of vaccine candidates.
- These ideas were subsequently adopted by Operation Warp Speed.

The Economic Way of Thinking Versus Folk Intuition

- Economists worried that the vaccine industry wasn't profitable *enough* while folk intuition and political pandering caused many people to worry about *excess* profits.
- Suspicion of profit-making was not without consequence.
- Australia, for example, took time to dicker over trivial reductions in vaccine prices. The result was a delay in vaccine purchases that slowed economic recovery and created billions of dollars in losses far in excess of any potential costs savings (Leigh and Holden 2022).



"While we all hope that this vaccine ends up panning out, it raises serious

alarm bells to see payers on the hook to hand Pfizer a massive

profiteering opportunity and locking in a \$20 per-dose cost before we even

know how many doses would be needed for long-term protection," said Eli

Zupnick, spokesman for the advocacy group Patients Over Pharma.

The Economic/Mathematical Way of Thinking versus Folk Intuition

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- Jan. 7 2020 – China reports new coronavirus.
 - Jan. 13 – 44 confirmed cases. 1 death.
 - Jan. 20 – 80 confirmed cases, 2 deaths.
 - Jan. 27 – 1,860 confirmed cases, 53 deaths.
 - Why worry?
 - Auto deaths in China: 1,150 per week
 - Cancer deaths in China: 7,052 deaths per day.
 - Richard Hatchett CEO of CEPI was worried.
 - Jan. 28 warning world leaders of potential for millions of deaths.
 - Even before that, Jan. 22 gives Moderna \$1 million to develop a COVID vaccine
 - Hatchett understood exponential growth

The Economic Way of Thinking versus the Physician

- Physicians look for rules that maximize the health of the treated.
- Economists are natural utilitarians. Utilitarians look for rules that maximize the “health” of society.
- The utilitarian approach led economists to appreciate:
 - The benefits of using dose stretching policies such as first doses first and fractional dosing (Tabarrok and others)
 - The value of testing the asymptomatic (Romer)
 - Human challenge trials (Tabarrok and others).

Utilitarianism: Why No Human Challenge Trials?

- January 11, 2020 data on the genetic code of Sars-COV-II from Yong-Zhen Zhang's lab is uploaded to the internet. January 13—a vaccine is designed.
 - Almost everything else was testing.
- Standard field trials are expensive and take a long time.
- HCT—take 100 volunteers, give 50 a vaccine. Expose all 100 to the virus. Results within a week.
- National Institute of Allergy and Infectious Diseases rejected HCT.
- “Dr. Fauci’s office said the institute has no plans to fund Covid-19 human challenge trials in the future. Many bioethicists support that decision. “We don’t ask people to sacrifice themselves for the good of society,” said Jeffrey Kahn, director of the Johns Hopkins Berman Institute of Bioethics.” NYTimes Oct 14, 2021



Maxwell Tabarrok 🌐🚀 @MTabarrok · 22h

Bioethicist: “We don’t ask people to sacrifice themselves for the good of society”

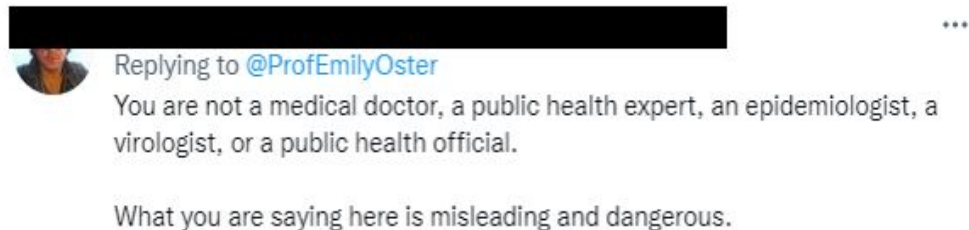
Also Bioethicist: "Stay at home and wear a mask everywhere for the next 2 years for the good of society"

The Omission-Commission Asymmetry

- Why were many physicians against human challenge trials?
 - It will be bad if some participants die.
- But wait, participants in an RCT also die! Maybe even more than in a HCT!
 - Yes, but those won't be our fault. We will *feel* bad if participants in an HCT die because it will be our fault.
 - Errors or omission (RCT) versus errors of commission (HCT).
- It's not about you! Do the thing which maximizes expected value!!!
- Utilitarianism has no role for the emotions of the decision maker per se—maximize social welfare.

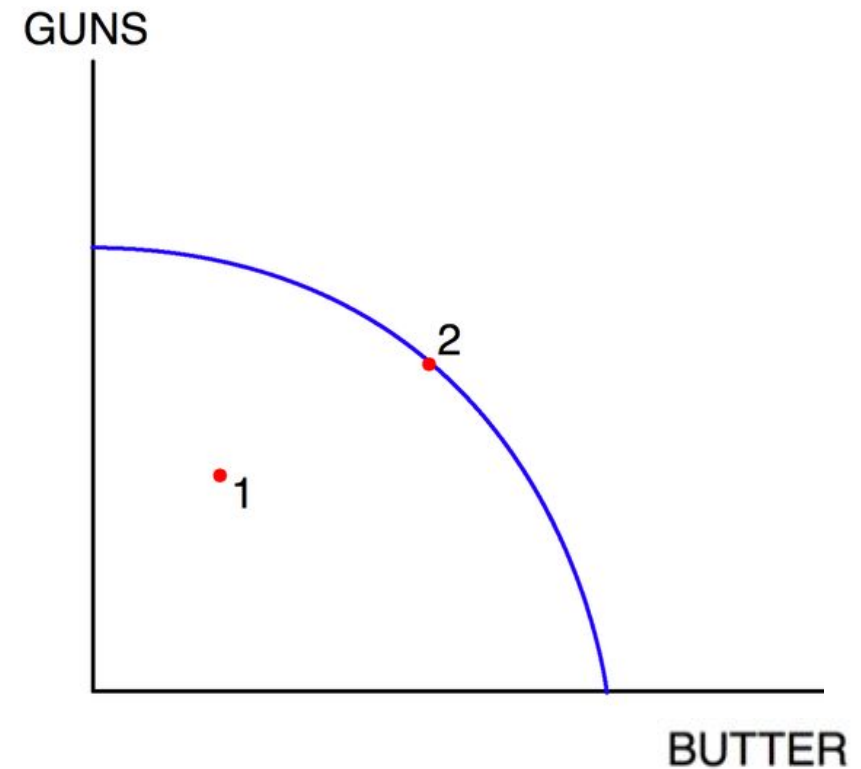
Did Economists Get Out of their Lane?

- Almost universally economists who discussed COVID policy were accused of ignorance and arrogance and not “staying in their lane”.
- Emily Oster, for example, was accused of being an “irresponsible child and teacher killer” for discussing the tradeoffs of school closures and the value of lockdowns.



The 2nd Most Important Economics Graph!

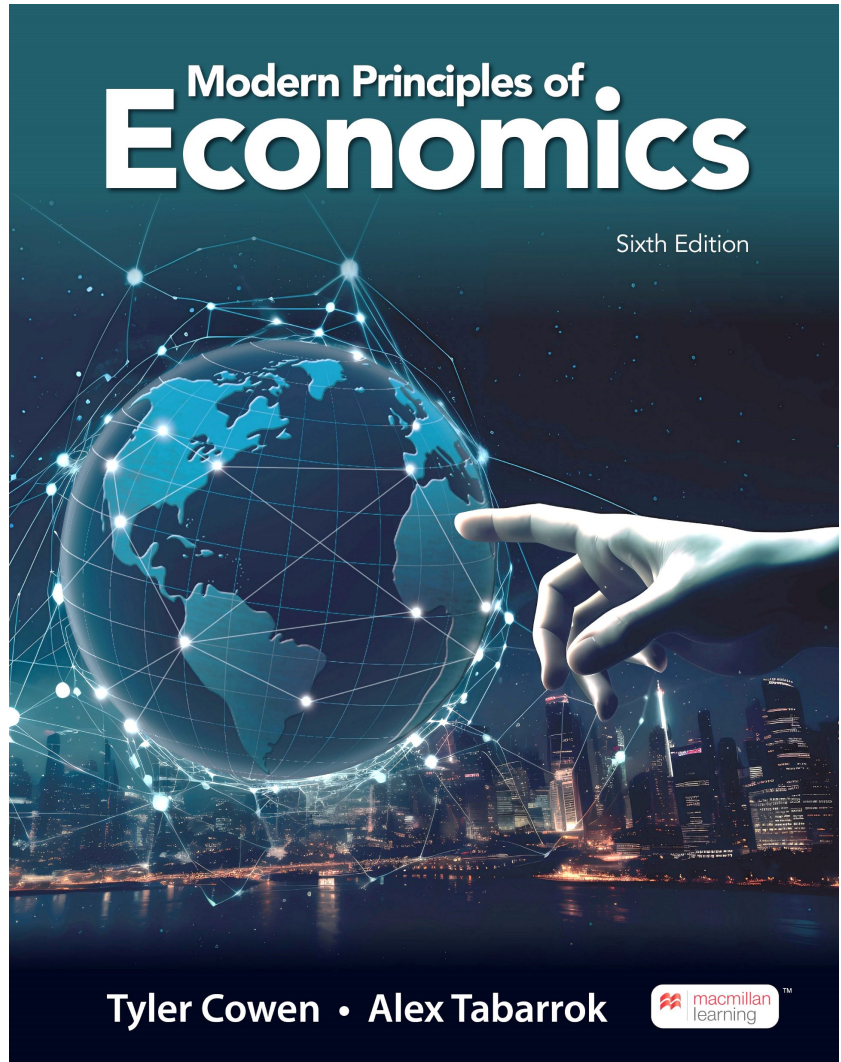
- Stay in your lane. You're not a general! You're not a dairy farmer!
- We cannot leave the choice of how many guns to have to the gun makers and how much butter to churn to the dairy farmers.
- We must evaluate tradeoffs.
- Economists bear responsibility: they must know something about guns and something about butter and they must be neutral in evaluating tradeoffs. Not easy but necessary.
- **The economist's lane is evaluating tradeoffs.**



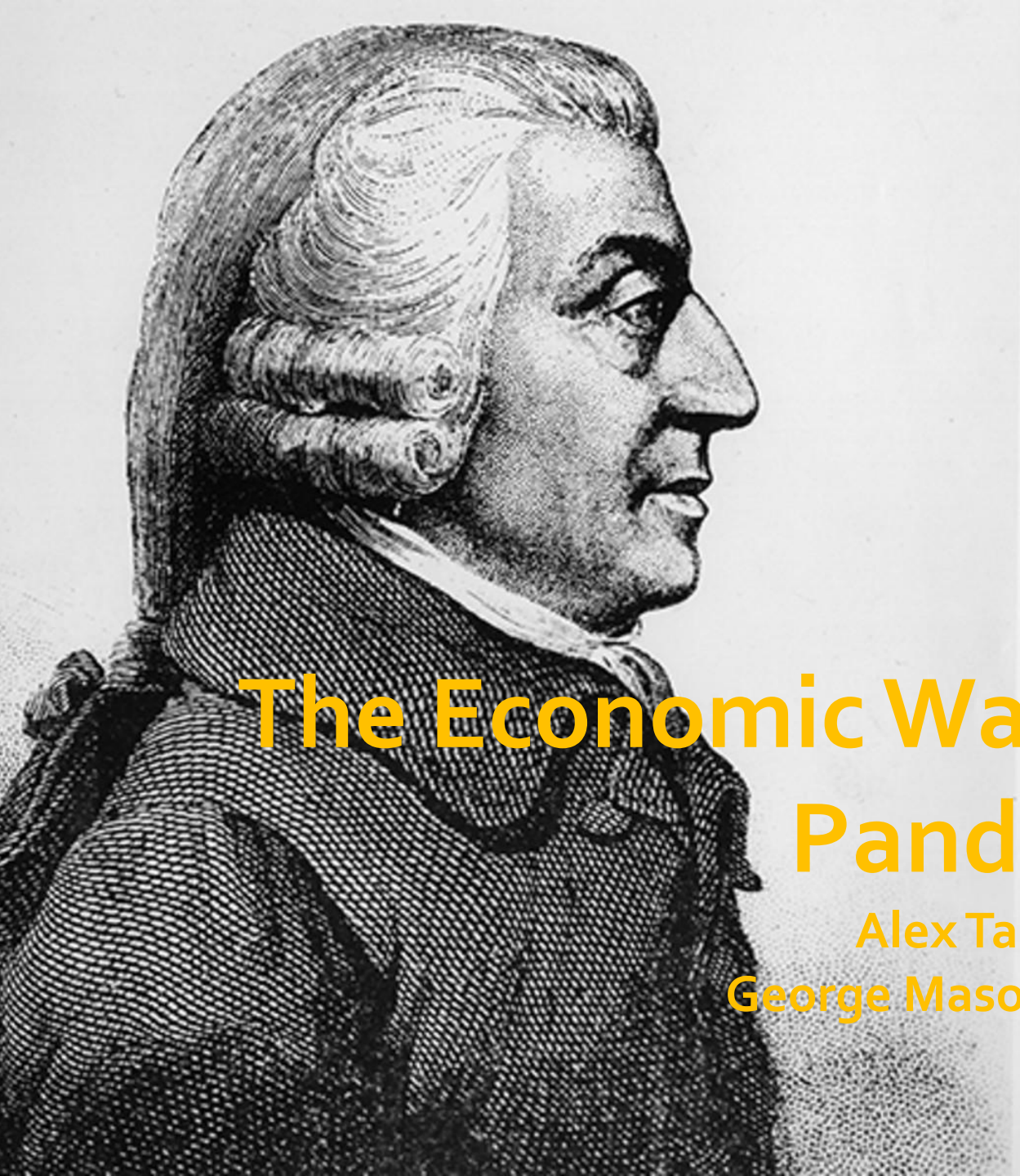
Questions for Economics Discussion

- In the COVID pandemic, were profits in the vaccine industry a) too high or b) too low? Contrast the economic way of thinking with political or “person in the street” thinking outlining different assumptions, perspectives, and goals.
- Should medical care aim to maximize the health of patients or the health of society? When will these differ?
- Is it ever acceptable to tradeoff lives for goods and services?
- What is the value of a human life? How do we quantify?
- Do the risks of human challenge trials differ from those of randomized controlled trials?
- The difficulties of understanding exponential growth and rewarding politicians for problems avoided?
- What is the role of the economist in society?

Conclusions



- The economic way of thinking in a pandemic:
 - Externalities
 - Quantification
 - Understanding Exponentials
 - Utilitarianism
- Tyler Cowen and Fast Grants.
- Modern Principles of Economics has discussed pandemics in macro and micro since first edition!
 - Externalities-flu shot.
 - Trade policy—keep some vaccine capacity!
 - Macroeconomics of real shocks and supply chain issues.



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Bayesianism

- The first rule of Bayesianism is to use all available information.
- Conflicted with the idea that “science” meant randomized controlled trials and only RCTs.
- Hence, for FDF there was no clinical trial for extending the time to the 2nd dose and hence “no science”. In fact, there was lots of evidence from previous vaccines that extending could be *beneficial*.
- In 2012, for example, Castiglione et al. (2012) expressed the standard wisdom:
 - It has been suggested that an interval of at least 2-3 months between the prime and the boost is necessary to obtain optimal responses, as memory T cells with high proliferative potential do not form until several weeks after the first immunization, and memory *B* cells have to go through the germinal center reaction and take several months to develop.

The Political Economy of Delay

- Politicians are extremely unlikely to respond well to exponential growth processes.
- Ordinary problem: Politicians have myopia. They will prefer a policy with modest benefits today and big costs tomorrow to a policy with modest costs today and big benefits tomorrow.
- Extraordinary problem: The better politicians manage a potential crisis, the more likely it is that the public will perceive their actions as overreactions.
 - Requires tremendous trust.
- When dealing with exponential growth, if you are not too early, you are too late. Suggests importance of automatic tripwires.