UNITED STATES MILITARY ACADEMY
WEST POINT

SS201: Principles of Economics

Lesson 1: Economic Principles

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United States Military Academy

Agenda

- Intros
- Admin
    - Course Schedule
    - Syllabus
    - Expectations
- Causal Inference Primer
    - Why No Computers in the Classroom
- **Why is the Army making me take this course?**
    - Economic Leader Principles

Introductions

- Name
- Hometown
- What you do here other than school
- Favorite TV Show or Book
- "Walk-Out" Song

Admin

Schedule | Syllabus | Expectations

- 3 Blocks
    - Micro - Consumer
    - Micro - Firms
    - Macro
- Point Breakdown

Pre-Class Assignments	100
Problem Sets x 6	150
Paper	70
WPR x 3	405
TEE	225
Instructor Points	50
TOTAL	**1000**

Admin

Schedule | Syllabus | Expectations

- No computers (typing), digital pens on tablets OK
- No bathroom breaks, leaving forfeits the lesson
- AI, schedule via calendly @ https://calendly.com/carson-homme/ai
- Class Slides available @ https://github.com/chomme3/SS201

Admin

Schedule | Syllabus | Expectations

What you can expect from me:

- Committed to showing you the science as well as the art of economics
- If I don't know the answer to a question, I'll find it. Try me.
- Plenty of people here to talk Army, but I'm the only one here to talk economics
- This may be the only economics course you ever take, so I will prioritize the conversation accordingly

The "Three P's" I Expect from You:

- **Proficient** in the basics (uniform, haircut, rolling sleeves, etc.)
- **Prepare** for lessons, tests, and assignments
    - Come to class prepared, with any and all questions
    - I am going to teach above the textbook.
- **Participate** in class

Causal Inference

Economics is the study of human behavior through both theoretical and empirical means.

It's a science and an art with intuition that one can prove using math.

As a part of teaching above the textbook, I'm going to show you selected economic research to help guide our modelling process.

Economists are concerned primarily with "causal effects"

"Machine learning" and "big data" use algorithms and patterns within data to predict out of sample

Economists look within a sample and identify causal relationships based in economic theory

Causal Inference

To find these patterns, economists rely on **natural experiments** or **randomized control trials**

Within the natural world, I can only give a person one treatment and see that one outcome.

Thus, assuming that economists can randomly assign treatment (or isolate some random variation of treatment within a sample), they can estimate the effects of different treatments.

Within these experiments, economists apply statistical techniques in the form of "regressions" to estimate specific effects.

Think of these regressions as tools to enhance precision and "take slack" out of coiled rope.

The key challenge within this analysis is to eliminate "selection" and show that the treatment caused the outcome

If this interests you, check out Mastering Metrics by Josh Angrist or Causal Inference by Scott Cunningham

Why no computers in the classroom?

Everyone cares about education. Economists call this "human capital"

Common belief is more education leads to more income

More efficient education produces more income

Technology improves everything, right?

Why no computers in the classroom?

Carter, Greenberg, and Walker (2017) test this…

Why no computers in the classroom?

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Randomly assigned all cadets taking SS201 to three groups:

1. Unfettered Computer / Tablet Access
2. Computer / Tablet Access if "Face-Up"
3. No tech

Why no computers in the classroom?

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Does technology improve learning and retention?

Why no computers in the classroom?

Table 3
Laptop and modified-tablet classrooms vs. non-computer classrooms.

	(1)	(2)	(3)	(4)
A. Dependent variable: Final exam multiple choice and short answer score				
Laptop/tablet class	−0.21***	−0.20***	−0.19***	−0.18***
	(0.08)	(0.07)	(0.06)	(0.06)
GPA at start of course			1.13***	1.00***
			(0.06)	(0.06)
Composite ACT				0.06***
				(0.01)
Demographic controls		X	X	X
R^2	0.05	0.24	0.52	0.54
Robust SE *P*-Val	0.010	0.005	0.001	0.002
Wild Bootstrap *P*-Val	0.000	0.000	0.000	0.000

- Values given in standard deviations.
- Comparison being made between classes that allowed computers versus those that did not.
- Standard deviation is an average of how far scores were from the average.
- EX. The Standard Deviation of WPR 1 was 11.59%. Being in a "computer allowed" classroom would imply that these cadets would have done **2.3% worse** on average.

Why is the Army making me take this course?

What is economics?

"If you only like philosophy, then be a philosopher. If you only like history, then be a historian. If you only like mathematics, then be a mathematician. But if you like all of those things, you should be an economist."

Tim S. Fuerst

Economics is the study of decision-making … a discipline focused on the optimal allocation of scarce resources that have alternate uses.

Leaders face scarcity in each decision – scarcity in time, people, and resources that have different uses. Leaders seek to allocate resources to their highest valued use.

As such, leadership and economics go hand in hand. Great leaders are good economists (even when they don't realize it).

The Economic Leader

The Economic Leader

Six fundamental economic principles underpin decision-making for any leader striving to achieve optimality in their organization.

(1) (2) (3) (4) (5) (6)

There is a trade-off in every decision a leader makes. What we give up constitutes the opportunity cost of a decision.

The Economic Leader

Six fundamental economic principles underpin decision-making for any leader striving to achieve optimality in their organization.

(1) (2) (3) (4) (5) (6)

Leaders think and decide on the margin. To optimize, decision-makers ensure the marginal cost of a choice never exceeds its marginal benefit.

The Economic Leader

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Leaders use their influence to solve coordination problems by shaping incentives. Leaders align incentives to influence individual action and create mutually beneficial outcomes for stakeholders. Great leaders anticipate the unintended consequences of their decisions by maintaining a keen understanding of individual motivations and likely responses.

The Economic Leader

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(1) (2) (3) (4) (5) (6)

Trade can make all parties better off by creating a “win-win.” Leaders realize the benefits from trade by facilitating specialization and comparative advantage among the people they lead.

The Economic Leader

Six fundamental economic principles underpin decision-making for any leader striving to achieve optimality in their organization.

(1) (2) (3) (4) **(5)** (6)

Perfect information leads to efficient outcomes, but we often make decisions with imperfect information. Leaders must seek equilibrium in gathering more information and being decisive. Leaders must appropriately identify risk, and balance the tradeoff between risk and reward.

The Economic Leader

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Based on the organization's goals, leaders have a normative responsibility to seek equilibrium between efficiency and equity. The efficient solution may not be equitable, and the equitable solution may not be efficient.

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At End State:

Leaders have humility in thought and action. They realize that correlation does not equal causation. They appreciate the assumptions and associated limitations in the models and perspectives that they use to view the world. Leaders are forced to deal with the messy reality, and they recognize that their own biases can influence decision-making.

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Next time...

- Chapter 2 (Including Appendix)
- Chapter 3

References

Carter, S. P., K. Greenberg, and M. S. Walker (2017). "The Impact of Computer Usage on Academic Performance: Evidence from a Randomized Trial at the United States Military Academy". In: *Economics of Education Review* 56, pp. 118-132.

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