BUEC 311: Business Economics, Organization and Management

Topic 1: An Introduction to Managerial Economics

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Economics isn't just business or dollars

The One Word That Explains Why Economics Professors Are Not Billionaires

This would change the financial experts you listen to

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Economics is a way of thinking

Dollars provide a unit of measure

Economics as a *Way of Thinking*

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  a few core ideas:

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Economics as a *Way of Thinking*

- Economics is a **way of thinking** based on a few core ideas:
- **People respond to incentives**
  - Money, punishment, taxes and subsidies, risk of injury, reputation, profits, sex, effort, morals
- **Environments adjust until they are in equilibrium**
  - People make adjustments until their choices are optimal given others' actions

Incentives Example: Dogs on the subway

The NYC Subway bans dogs unless they can be "enclosed in a container". Source: Ryan Safner

Incentives Example: Subway II

Pictures Source, via Ryan Safner

Incentives Example: England's window tax

The British government, in 1696, was looking for a way to impose a wealth-based property tax. **Solution**: They imposed a tax payable based on the number of windows in your dwelling, on the premise that larger houses had more windows.
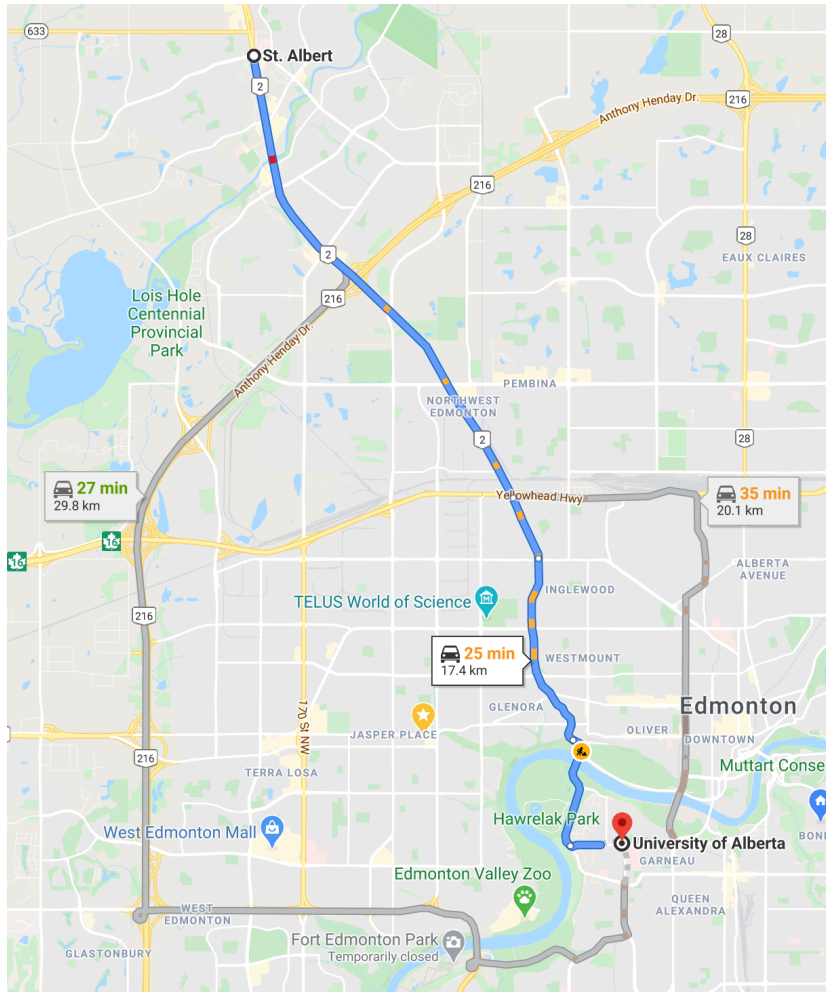
Economics as a *Way of Thinking*

- Economics is a **way of thinking** based on a few core ideas:
- **Economic agents have goals**
  - Personal satisfaction
  - Profit
- **Constraints impair agents' goal seeking**
  - Budget constraints
  - Production technology
  - Resource constraints
- **Agents optimize subject to constraints**
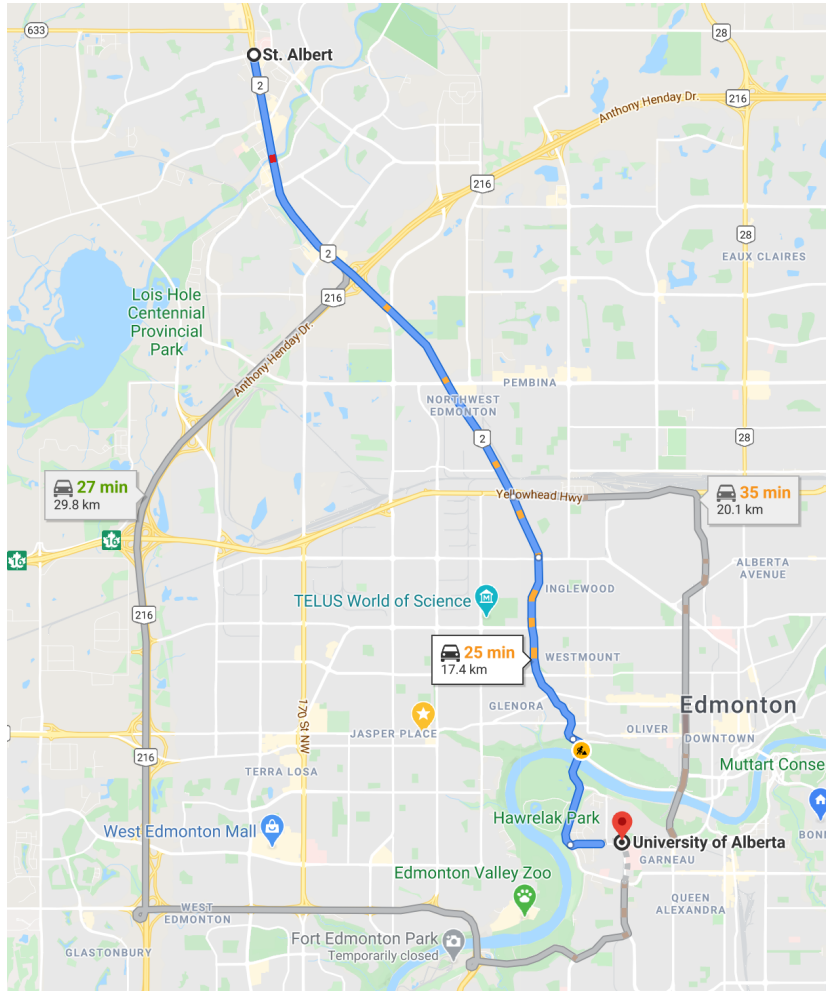- **Joint optimization leads to equilibrium**
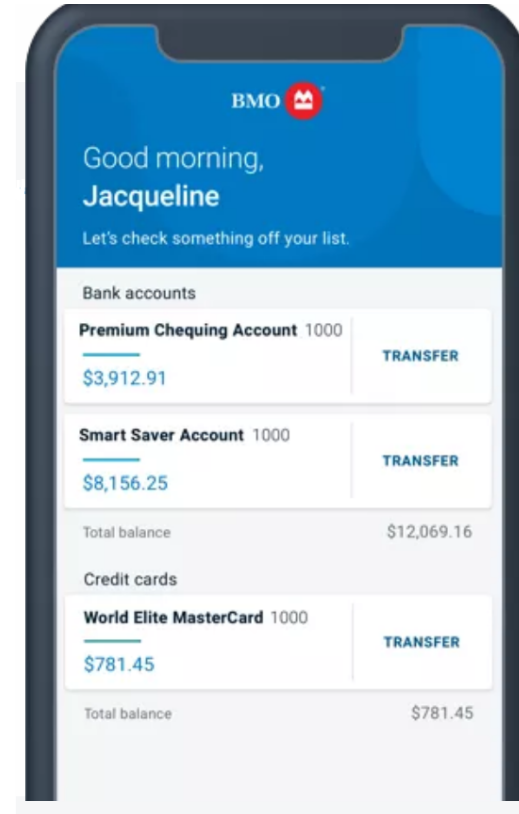
Equilibrium Example I

- Consider the two routes from St. Albert to the U of A
  - Simplified example: 1000 cars commute
  - Messier Trail / Groat Road travel time: 25 min + 1 min/ 100 extra cars
  - Anthony Henday: 30 minutes (always)
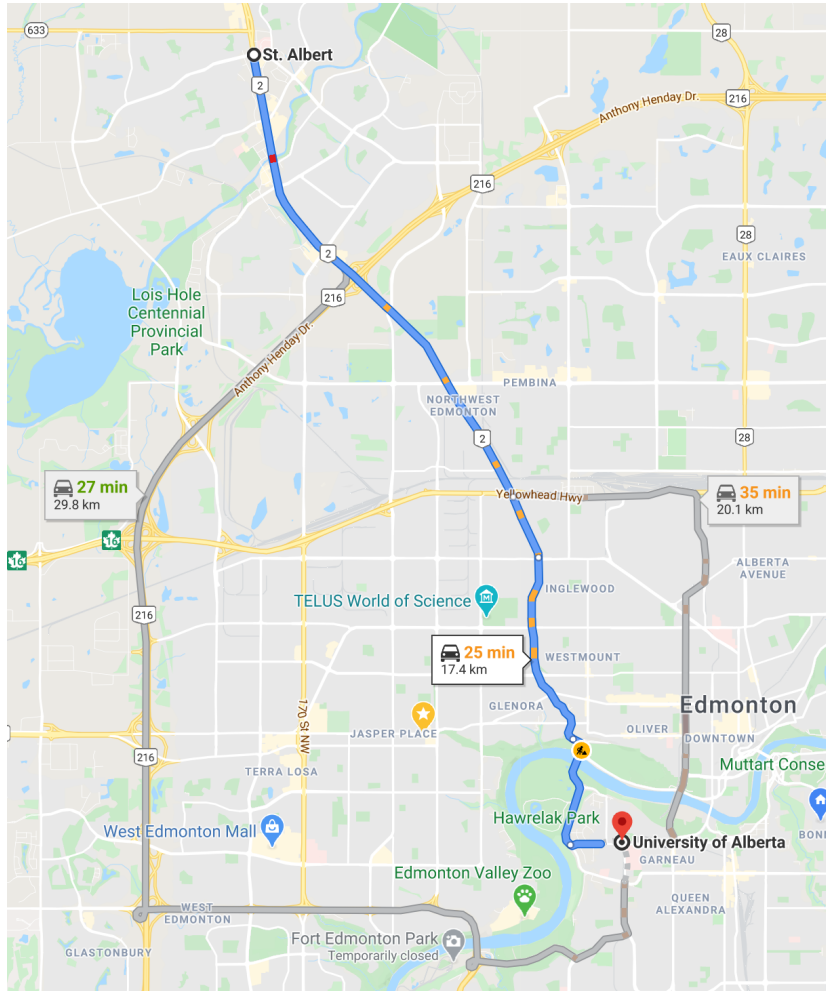
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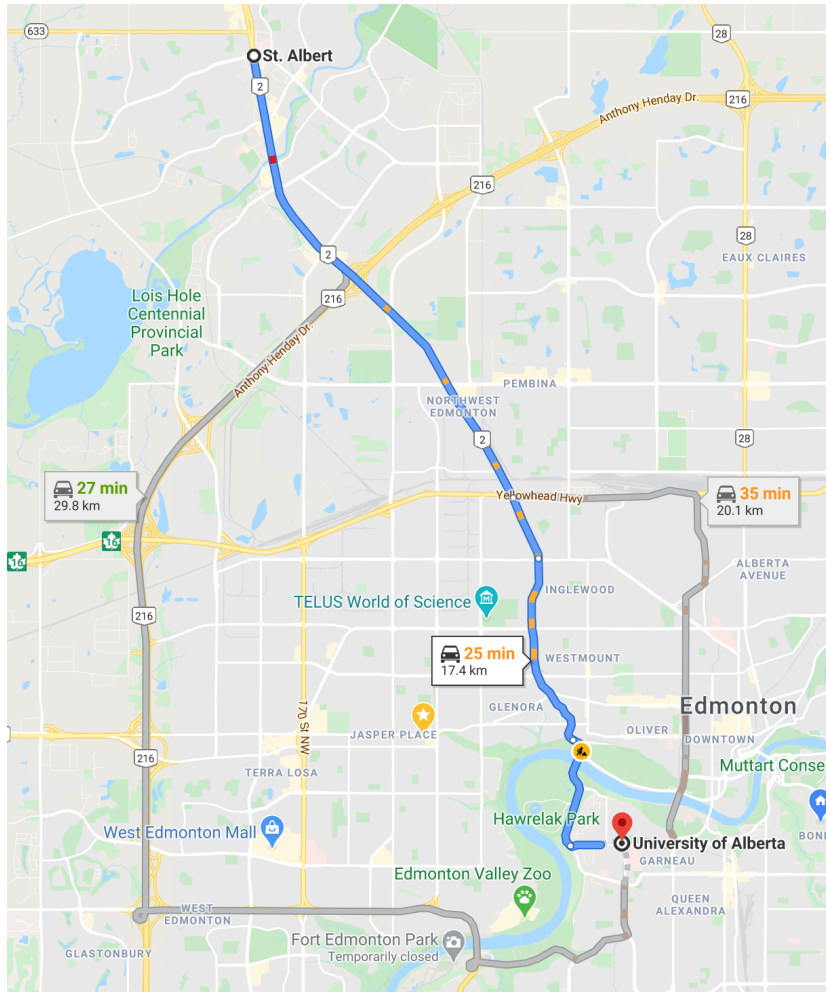
Equilibrium Example II

- Consider the two routes from St. Albert to the U of A
  - Simplified example: 1000 cars commute
  - Messier Trail / Groat Road travel time: 25 min + 1 min/ 100 extra cars
  - Anthony Henday: 30 minutes (always)
- Assume people **optimize**: choose road to **minimize travel time**
- **Scenario I: Fewer than 500 cars** choose Groat Road
  - What will people do?
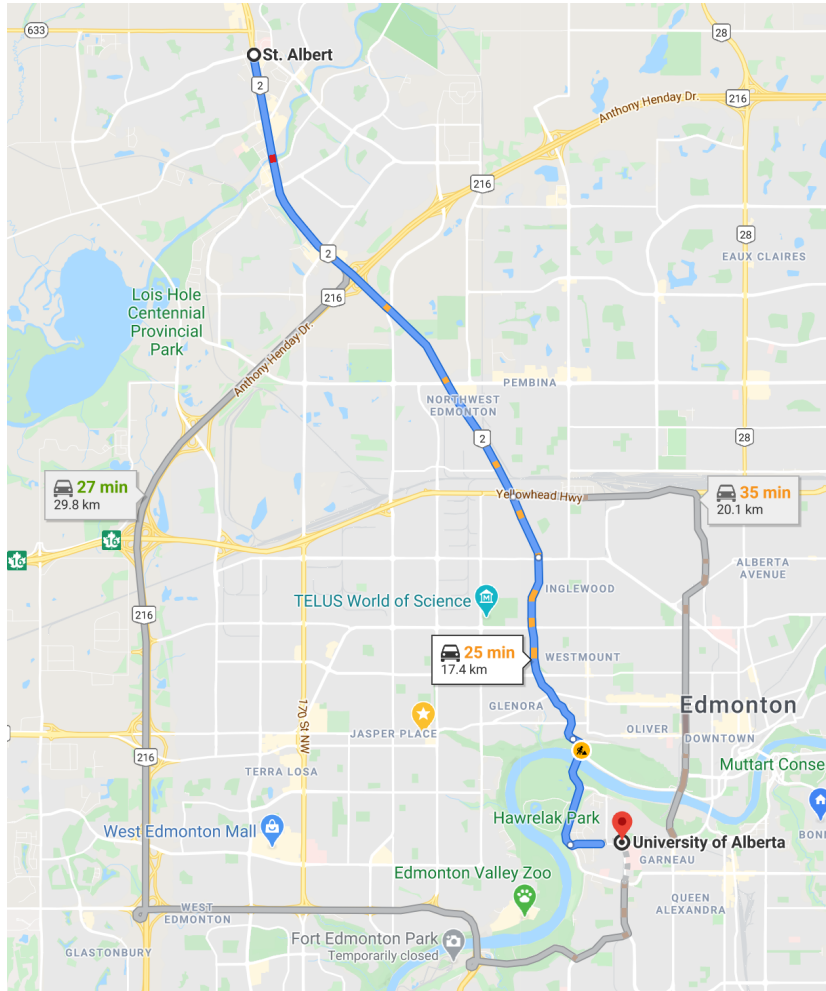
Equilibrium Example III

- Consider the two routes from St. Albert to the U of A
  - Simplified example: 1000 cars commute
  - Messier Trail / Groat Road travel time: 25 min + 1 min/ 100 extra cars
  - Anthony Henday: 30 minutes (always)
- Assume people **optimize**: choose road to **minimize travel time**
- **Scenario I: More than 500 cars** choose Groat Road
  - What will people do?
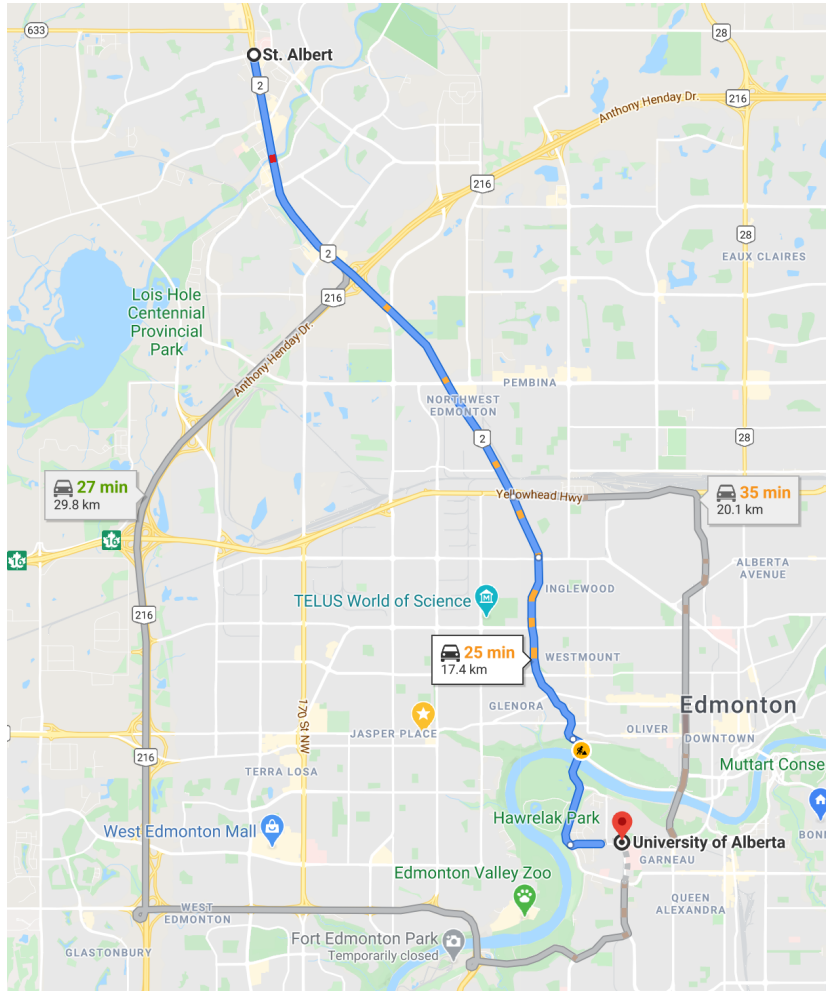
Equilibrium Example IV

- Consider the two routes from St. Albert to the U of A
  - Simplified example: 1000 cars commute
  - Messier Trail / Groat Road travel time: 25 min + 1 min/ 100 extra cars
  - Anthony Henday: 30 minutes (always)
- Assume people **optimize**: choose road to **minimize travel time**
- **In Equilibrium**: How many cars are on each road?

Equilibrium Example IV

- Consider the two routes from St. Albert to the U of A
  - Simplified example: 1000 cars commute
  - Messier Trail / Groat Road travel time: 25 min + 1 min/ 100 extra cars
  - Anthony Henday: 30 minutes (always)
- Assume people **optimize**: choose road to **minimize travel time**
- What happens **in equilibrium** as Groat bridge is expanded, reducing commute time to 22 min + 1 min/ 100 extra cars?

More vocabulary

- **Comparative statics**: examining changes in equilibria cased by an external change (in incentives, constraints, etc.)
  - Most of what we do in this class will fall into this category
- Comparative dynamic analysis is possible but much more challenging: math is harder when it moves!
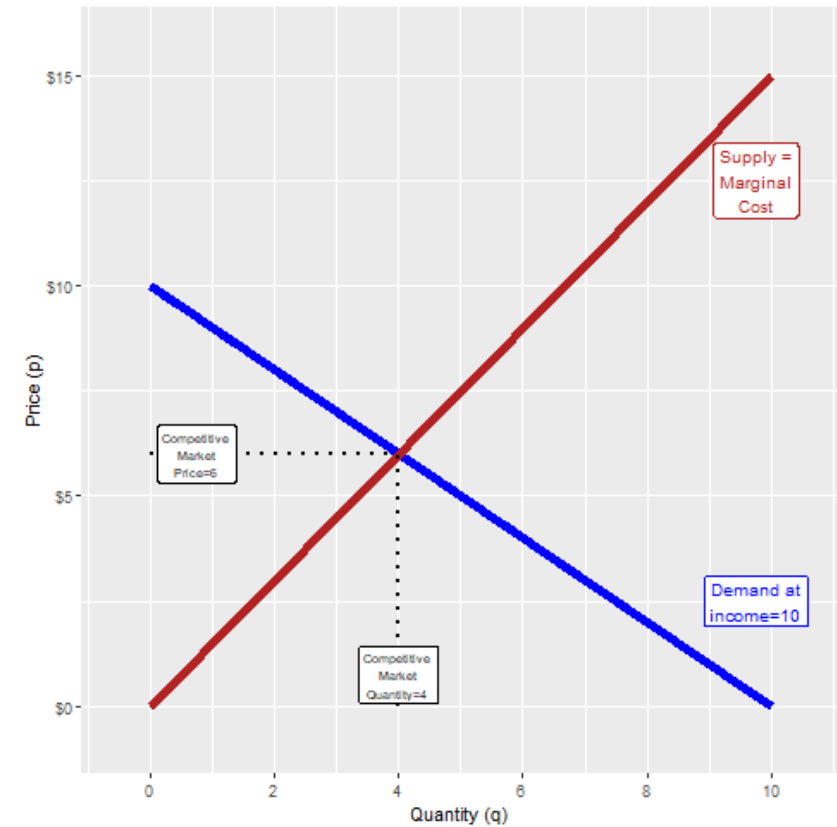
More vocabulary

- If economic agents can **learn** and **change** their behavior, they will always **switch** to a higher-valued option

- If there are no alternatives that are better, people are at an **optimum**

- If everyone is at an optimum, the system is in **equilibrium**
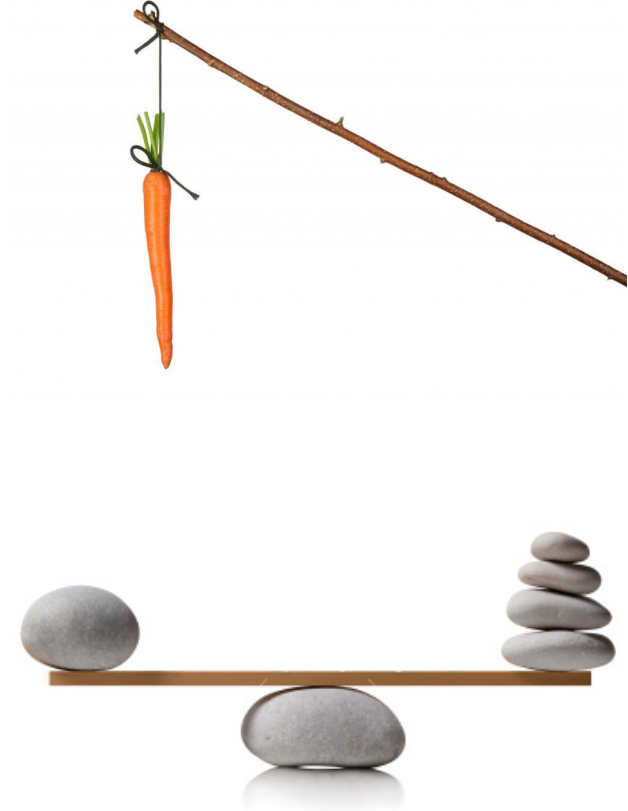
Why We Model I

- Economists often "speak" in models that explain and predict human behavior

- The language of models is mathematics

- Mathematical inference is expressed through equations and graphs

- This is what scares students most about economics. Don't let it scare you.

$$C(S_t, t) = S_t N(d_1) - K\, e^{-r(T-t)} N(d_2)$$

where,

$$N(x) = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{x} e^{-\frac{y^2}{2}}\, dy$$

$$d_1 = \frac{\log\left(\frac{S_t}{K}\right) + \left(r + \frac{\sigma^2}{2}\right)(T-t)}{\sigma\sqrt{T-t}}$$

$$d_2 = \frac{\log\left(\frac{S_t}{K}\right) + \left(r - \frac{\sigma^2}{2}\right)(T-t)}{\sigma\sqrt{T-t}}$$

K: **Option exercise price at maturity**

Why We Model II

- Economists use conceptual models: fictional constructions to logically examine consequences

- Economics is broader than just mathematical models:

  - Economists run experiments
  - Economists analyze data
  - Economists make predictions

- Math is a tool, it's not the goal

Esther Duflos, Nobel-prize-winning economist (Source: MIT)

Remember: All Models are Wrong!

Caution: Don't conflate models with reality!

- Models help us *understand* reality.

- A good economist is always aware of:

  - the limits of their model
  - the key underlying assumptions
  - " *ceteris paribus* " (all else equal)
  - "...and then what?" (is the system in equilibrium?)
  - "...compared to what?" (counterfactual analysis)

Economics uses, but is not limited to, math
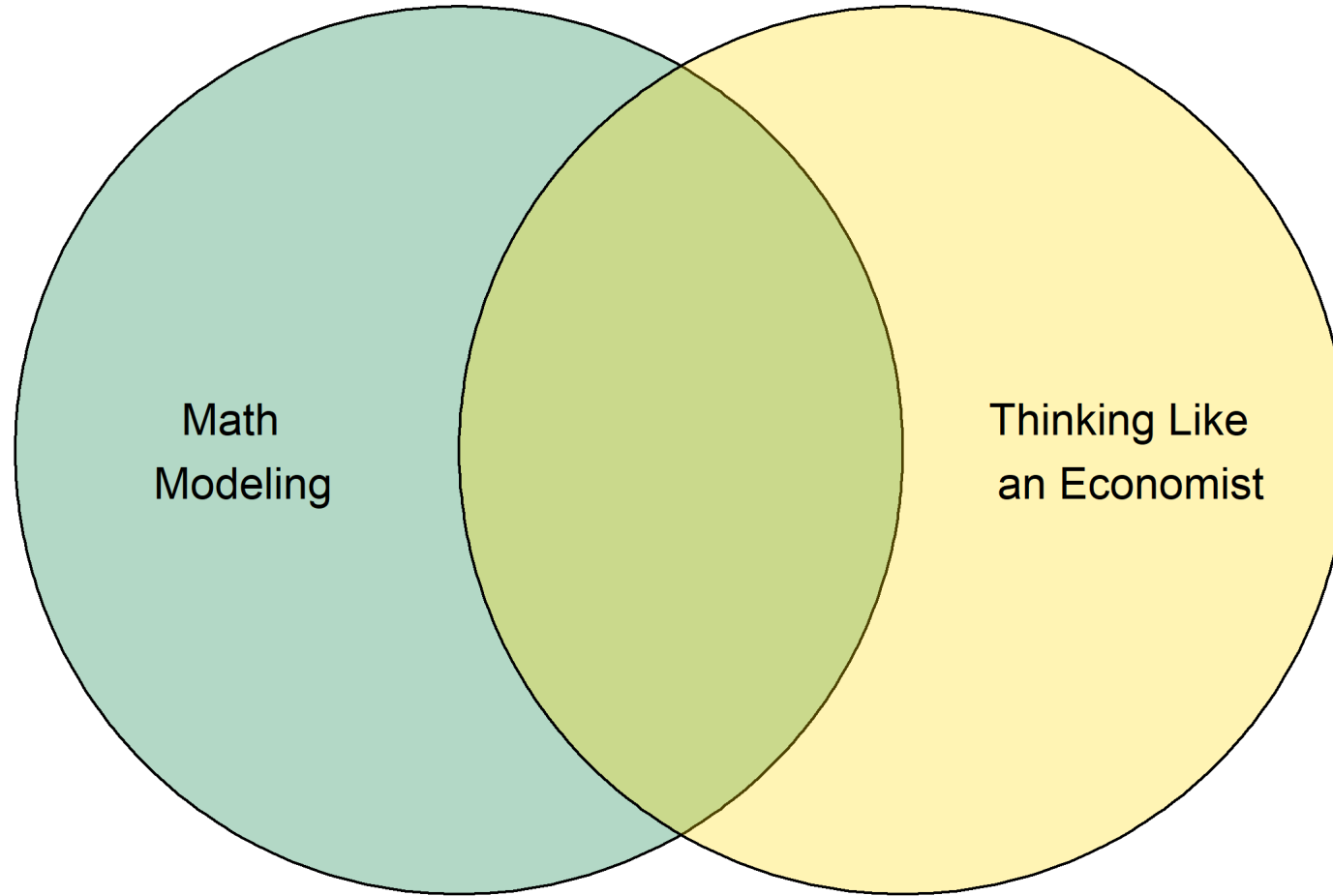
Positive and Normative Statements

- Economics alone can't tell you the **right** decision
- A positive statement is a statement of what **is** or what **will happen** and describes reality.
  - If you increase the costs of production, consumer prices will go up.
- Positive statements can reflect **uncertainty** about outcomes
- A normative statement concerns what somebody believes **should** happen:
  - "The government should tax greenhouse gas emissions."
  - Normative statements cannot be tested because they imply value judgments which cannot be refuted by evidence.
- Normative statements can inform objective functions
  - A decision-maker might look for a policy which does not increase inequality
  - Economists can provide constrained advice: this policy accomplishes your objective and **is unlikely to** increase inequality

Wolfers and Stevenson's Basic Principles

Think Like An Economist

Why Should You Think Like an Economist?
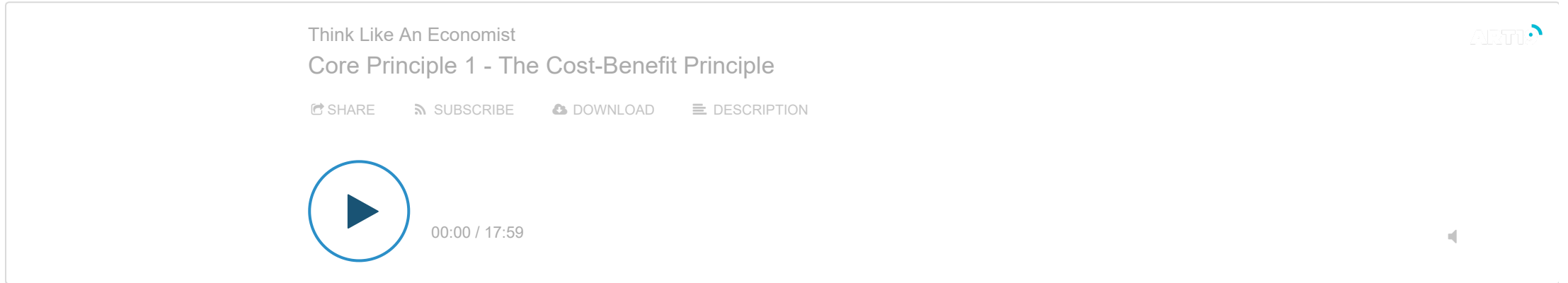
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Wolfers and Stevenson's Basic Principles

Principle # 1: The cost-benefit principle

Think Like An Economist

Core Principle 1 - The Cost-Benefit Principle

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- What are the benefits and costs of each decision?
- Why do we measure in dollars?
  - "Economists love dollars as much as architects love inches"
- Are you getting a good deal?
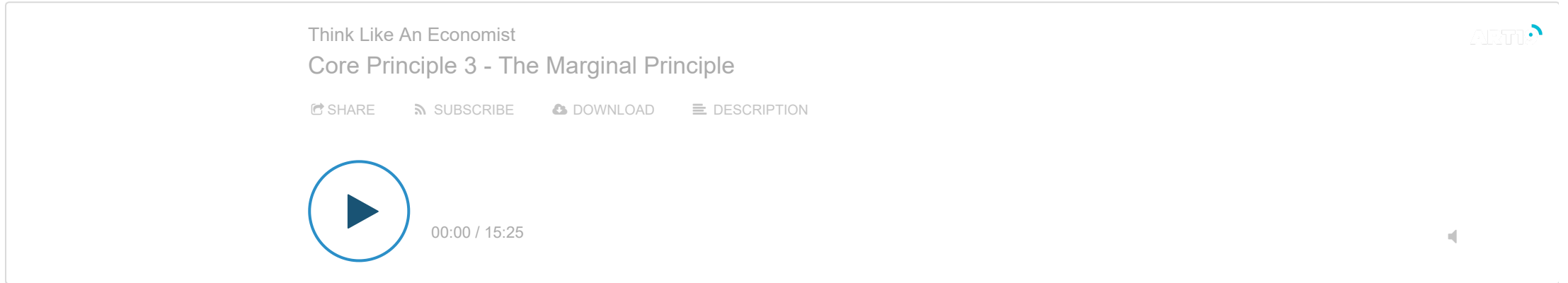
Wolfers and Stevenson's Basic Principles

Principle # 2: The opportunity cost principle

Think Like An Economist
Core Principle 2 - The Opportunity Cost Principle

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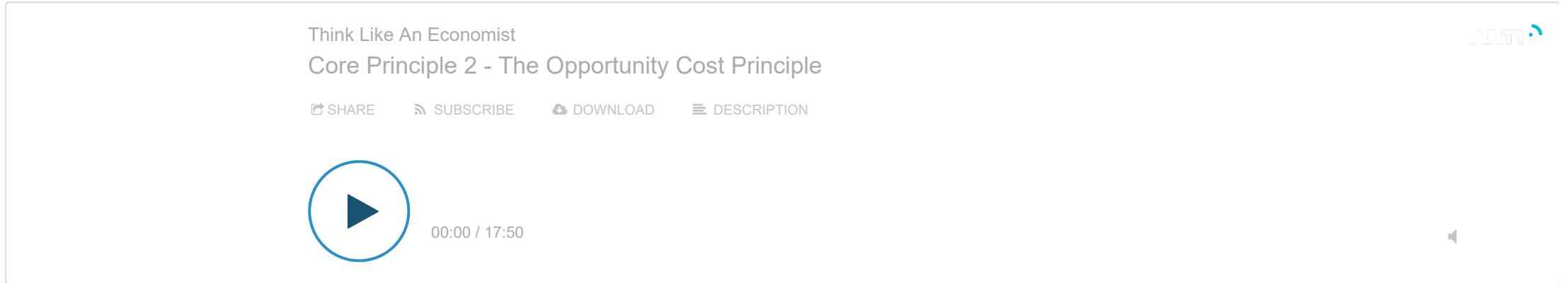
- Or what?
  - should I take this class or that one?
  - should I major in BUEC or MKTG
  - should I take this job or this internship?
- What's my next-best alternative?

Wolfers and Stevenson's Basic Principles

Principle # 3: The marginal principle

Think Like An Economist

Core Principle 3 - The Marginal Principle

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- Should we buy/sell one more?
- Should we hire one more staff?
- Should I add another class to my schedule?
- Should I drop a class?

Wolfers and Stevenson's Basic Principles

Principle # 4: The interdependence principle

Think Like An Economist
Core Principle 4 - The Interdependence Principle

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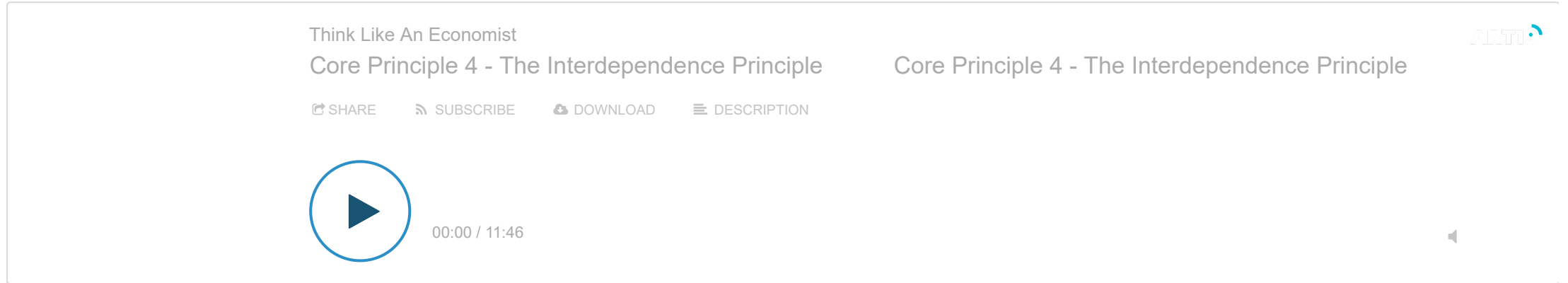
- All else equal...but is it?
- What happens to my best decision when other factors change?
- Does my value depend on what others do? Network externalities?