Scarcity, Choice, and Tradeoffs

Chapter 1

Objectives

- To review briefly the economic model, its purpose, and several fundamental principles
  - Terms you should understand (eventually)
    - Scarcity
    - Trade-offs
    - Thinking at the margin
    - Opportunity cost
    - Gains from trade

The Big Questions societies must answer

- What to make?
- How to make it?
- Who gets to consume it?
  i.e. How should resources be allocated?
- Who gets to pay for it?

Microeconomics provides a model of resource allocation through markets

- What is a market?
  - "A meeting together of people for the purpose of trade by private purchase and sale" (Merriam-Webster dictionary)
    - Where buyers and sellers ("demanders" and "suppliers") get together
- But note that economists employ a very broad notion of "market"
    - The market for wheat
    - The market for human kidneys
    - The market for spouses
    - The market for political influence
  - Note that there are willing buyers and sellers in each instance
  - There is also a "price" (which need not be monetary), and a quantity that is exchanged at that price

The economic model

- Starting point: We live in a world of *scarcity*.
  - "Scarce" does not mean "rare": A good is scarce if you must give something up to get more of it.
    - Diamonds are scarce (they are also rare)
    - M&M's are scarce (but they are certainly not rare!)

- Because of scarcity, we are constantly facing *choices*.
  - Should we use that field for growing wheat or corn, for building houses, or for open space?
  - Should California use its water for farming, drinking, or fish preservation?
  - Should you use Saturday for studying economics or for watching football?
- Note that all of these choices involve some kind of *trade-off* because of scarcity.

The economic model (cont.)

- Economics provides a model of how such choices are made
  - The model assumes people "optimize" (choose what makes them best off) . . .
  - . . . and an "equilibrium" resource allocation results
    - That equilibrium is expressed in terms of prices, and the quantities produced and consumed

- The economic model is based on several principles…

Principle 1: Incentives matter

- In a simple sense, the economic model can be summarized as “people respond to incentives.”
- In other words, people make choices in response to the benefits and costs presented by those decisions
- As the benefits and/or costs of a decision change, (some) people change what they do

Principle 2: Life consists of trade-offs.

- This is a fundamental implication of scarcity
  - You want some more of "X" . . .
  - You must give up some of "Y"
- Another way of saying this is, "There is no such thing as a free lunch"
  - This is why economics is often called "the dismal science"
- And hence the term "opportunity cost"
  - The true cost of anything is what you must give up to get it

Principle 3: Rational people make choices at the margin

- They consider the benefits and costs of a particular action.

- They act only when the marginal (additional) benefits exceed the marginal (additional) costs.

Principle 4: Trade makes people better off

- Trade is a *voluntary* activity: people only trade if they expect to be made better off.

- Trade moves goods from lower value to higher value uses:
  - If I own a baseball card I value at $5 and you value at $10, a trade can make us both better off
  - And the value of the card rises from $5 to $10

- The increase in value is called “the gains from trade”, or “surplus”
  - The above trade generates a surplus of $5

Principle 5: Good institutions

- **Good institutions (political, legal, social) align "self-interest" with the "social interest"**
- Where institutions are "good", you get rich by developing new products, or better or less expensive versions of existing products
  - In order to make yourself better off, you must make others better off too
- Under bad institutions, you get rich by cultivating relationships to powerful politicians, or paying bribes, or getting a government job that will allow you to extract bribes
  - Here, you make yourself better off only by making others worse off (e.g., "crony capitalism")

Does the economic model provide a realistic description of human behavior?

- Probably not. Certainly not always
- A more important point, however, is that models are *never* realistic
  - Rely on *assumptions* (here, we assume rationality of consumers/producers)
  - The usefulness of a model depends not on its "realism", but on its ability to predict
  - The assumption that people decide by comparing MB and MC appears to be pretty useful for prediction

The economic model is *positive* rather than *normative*

Positive statement: addresses the consequences of an action

Normative statement: expresses a value judgment

Normative or positive?

- If the price of potato chips goes down, people will eat more potato chips.
  - _____
- People eat too many potato chips.
  - _____
- Daycare should be high quality and inexpensive.
  - _____
- Raising the quality of daycare will raise daycare's price.
  - _____
- It is important that everyone be covered by health insurance.
  - _____
- Requiring that individuals with pre-existing health conditions pay the same price for insurance as healthy individuals will raise prices paid by healthy individuals.
  - _____

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Positive versus Normative (cont.)

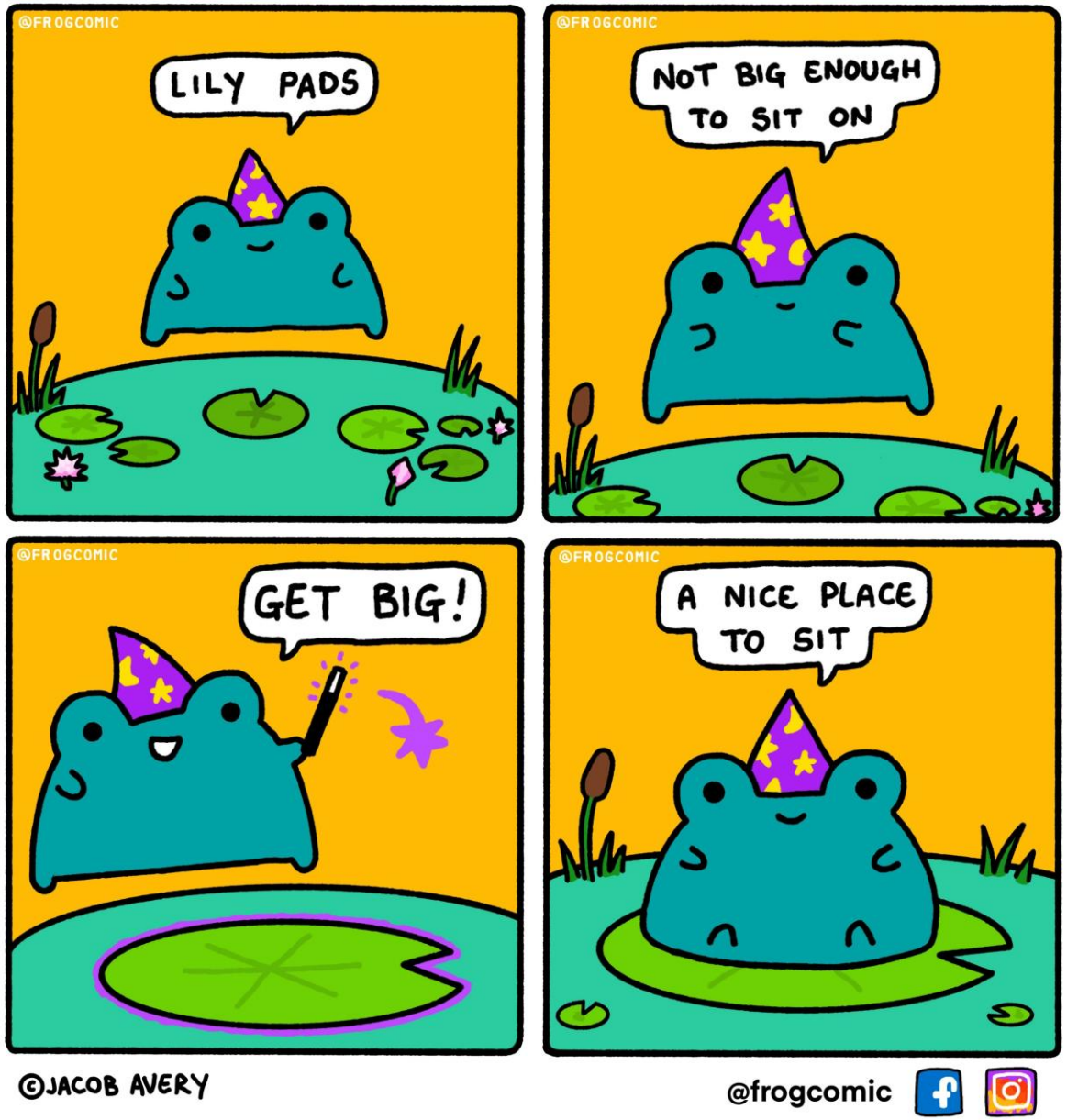
- Try not to confuse normative (what you would like to happen) with positive (what the model predicts will happen)

- The distinction is one reason why some people find economics confusing (or hate economists!)

- Again, the economic model focuses on positive questions.
  - The model does not say, "People should eat more potato chips."
  - It simply predicts the circumstances under which they will.
  - It also makes tradeoffs apparent, and many advocates hate that!

Where we go from here

- Build our foundation for economic thinking:
  - Marginal Analysis
  - Opportunity Cost
  - Gains from Trade and Comparative Advantage



Thinking at the Margin

Objective

Really understand what is meant by “thinking at the margin”, and why good economic decisions are “marginal” decisions.

Marginal analysis

- Here are 2 questions:
  - Is sleep or studying more important?
  - Is one more hour of studying tonight more important than one more hour of sleep?
- What is the difference between the two?
  - One is a “good” economic question and the other is not.

Thinking at the margin

- "Marginal" means "additional"
  - Economic questions involve marginal amounts
    - Should I study another hour?
    - Should I drink another cup of coffee?
    - Should Boeing produce another airplane?
- Examples of good "at the margin" public policy questions:
  - "Should we protect an additional wilderness plot?"
  - "Should we hire another teacher?"
- The marginal principle: **If the marginal benefits (MB) ≥ the marginal costs (MC), do it!** If not, don't.

Let's think about marginal costs

- Consider a Clemson football game
- What are some of the marginal costs of attending a game?
  - The ticket to the game you purchase? (assuming you didn't win the raffle)
  - The hamburger you eat at the game?
    - Would you be eating if you did something other than going to the game?
    - More on this one later…
  - Studying on that day?

- The ones you answered "yes" to are the costs that influence your decision!

- So when considering whether to go to the game, you compare the benefits – e.g., enjoyment – you would not otherwise get (the marginal benefits) with the costs you would not otherwise pay (the marginal costs)

A numeric example: Bob's total benefit schedule for pizza

Slice #	1	2	3	4	5	6
Total Benefits	$8.00	$14.00	$15.01	$15.50	$15.55	$14.55

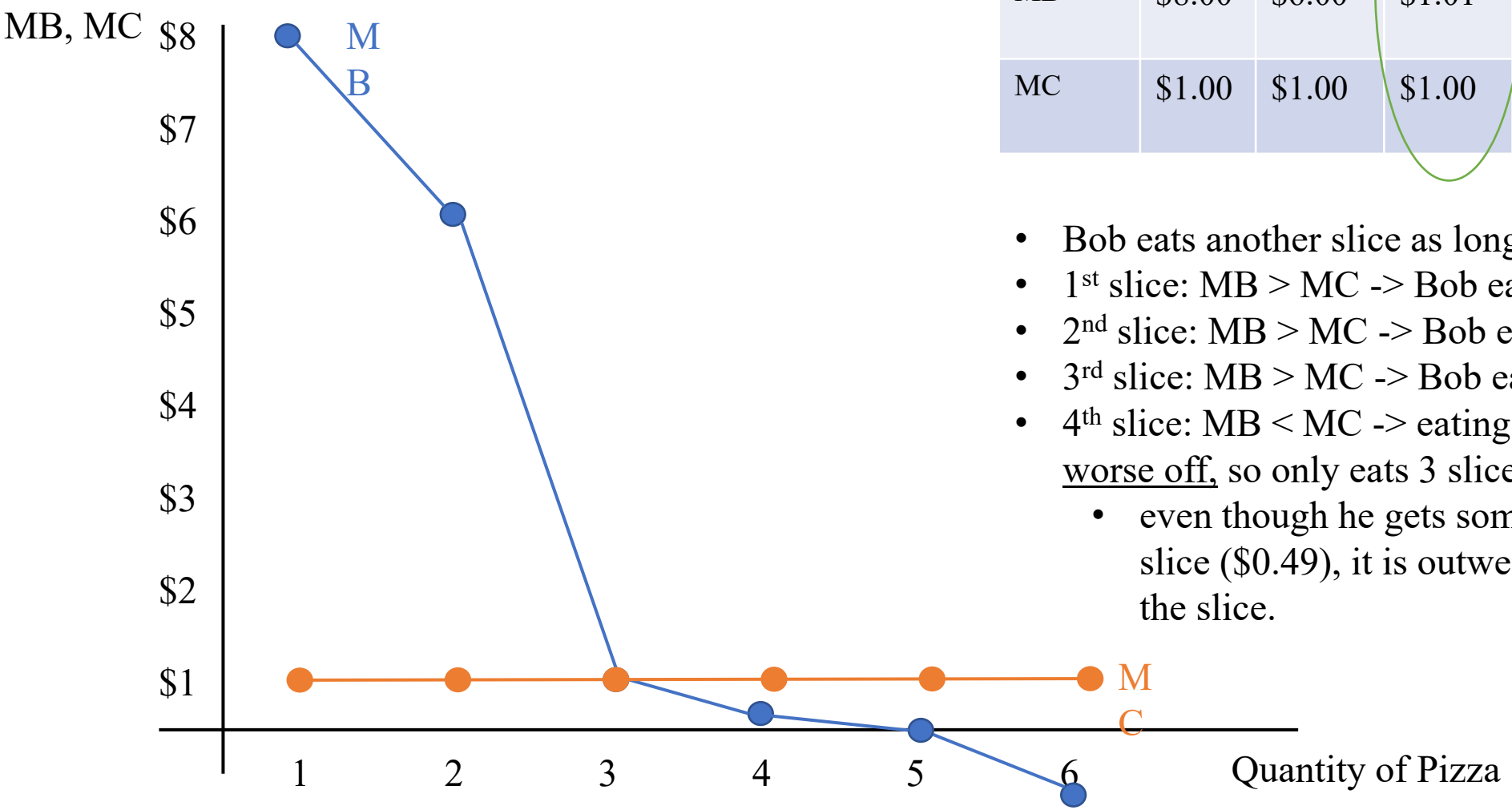
- Note that as Bob increases his consumption of pizza, his total benefits rise (up to a point).
- How much additional benefit does Bob get from eating the second slice of pizza?
  - $14 - $8 = $6
- Marginal means additional. Marginal benefits are the benefits from an additional slice of pizza. In other words, they are the change in total benefits with one more slice consumed
- How much additional benefit does Bob get from eating the third and fourth slices of pizza?
- What would be Bob's marginal benefit from the sixth slice of pizza?
- Is it possible to get negative benefits from a slice of pizza?

Bob’s Costs

- Let’s say Bob is at Todaro’s $1 slice night (for whatever reason)

- What’s Bob’s marginal cost of the first slice?
- How about the second?
- Third?
- …

Graphing Bob's MB & MC



Slice #	1	2	3	4	5	6
Total Benefits	$8.00	$14.00	$15.01	$15.50	$15.55	$14.55
MB	$8.00	$6.00	$1.01	$0.49	$0.05	-$1.00
MC	$1.00	$1.00	$1.00	$1.00	$1.00	$1.00

- Bob eats another slice as long as the MB > MC
- 1st slice: MB > MC -> Bob eats the 1st slice
- 2nd slice: MB > MC -> Bob eats the 2nd slice
- 3rd slice: MB > MC -> Bob eats the 3rd slice
- 4th slice: MB < MC -> eating a 4th slice makes Bob worse off, so only eats 3 slices.
  - even though he gets some benefit from the 4th slice ($0.49), it is outweighed by the cost of the slice.

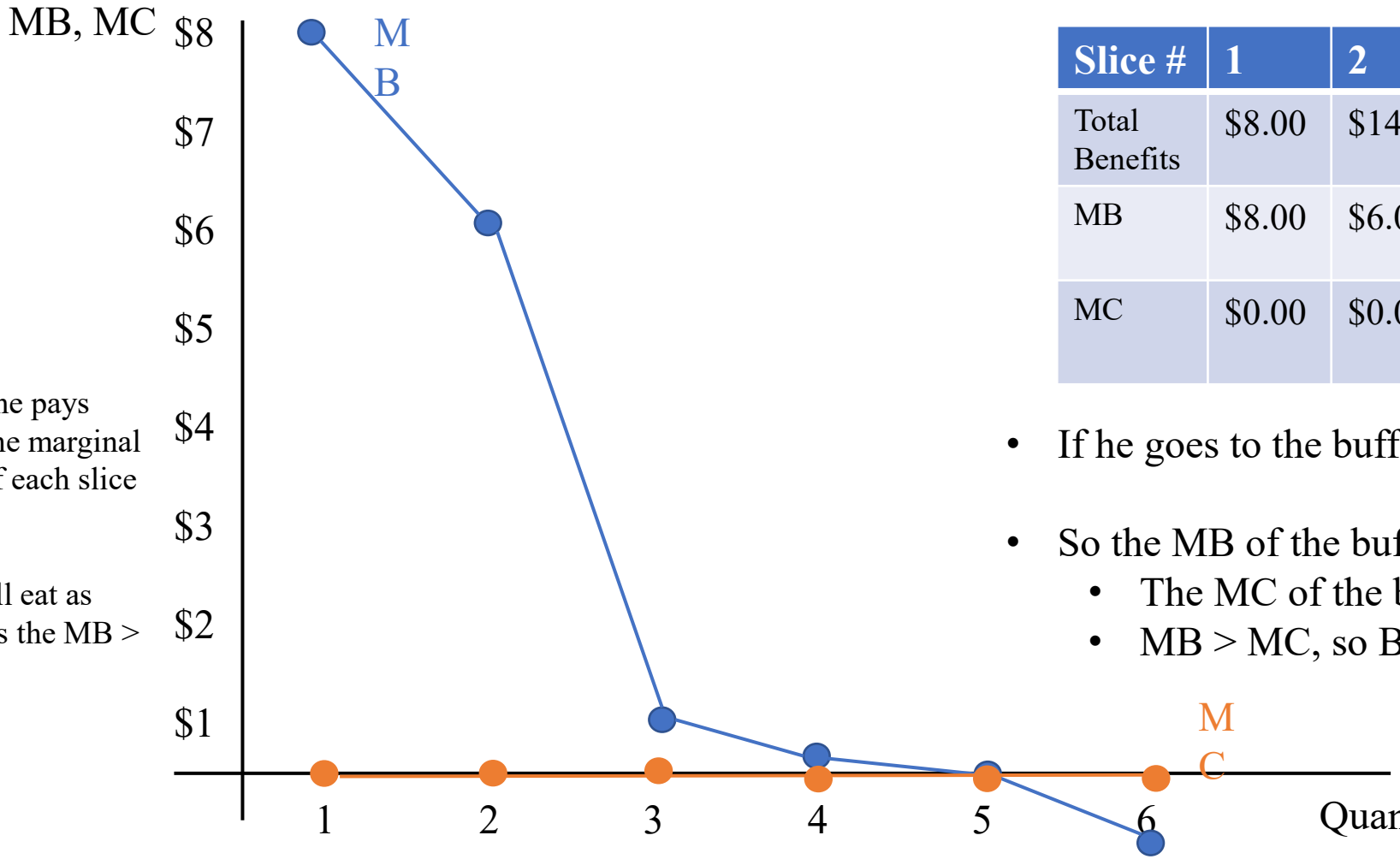
A twist: All you can eat pizza

- Imagine Todaro's is running a special "all you can eat buffet" event.
- Entry is $10 and you can have as many slices of pizza as you want.

- Would Bob go to the event?
  - What are the relevant marginal benefits/costs?

- Imagine Bob decides to go to the event. How many slices will he eat?

Graphing Bob's MB & MC with "all you can eat"



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MC	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00

- Once he pays $10, the marginal cost of each slice is 0.
- He will eat as long as the MB > 0.

- If he goes to the buffet, he will eat 5 slices
- So the MB of the buffet ticket is $15.55
  - The MC of the buffet ticket is $10
  - MB > MC, so Bob goes to the buffet!

Summing up the marginal principle:

If MB ≥ MC, do it!

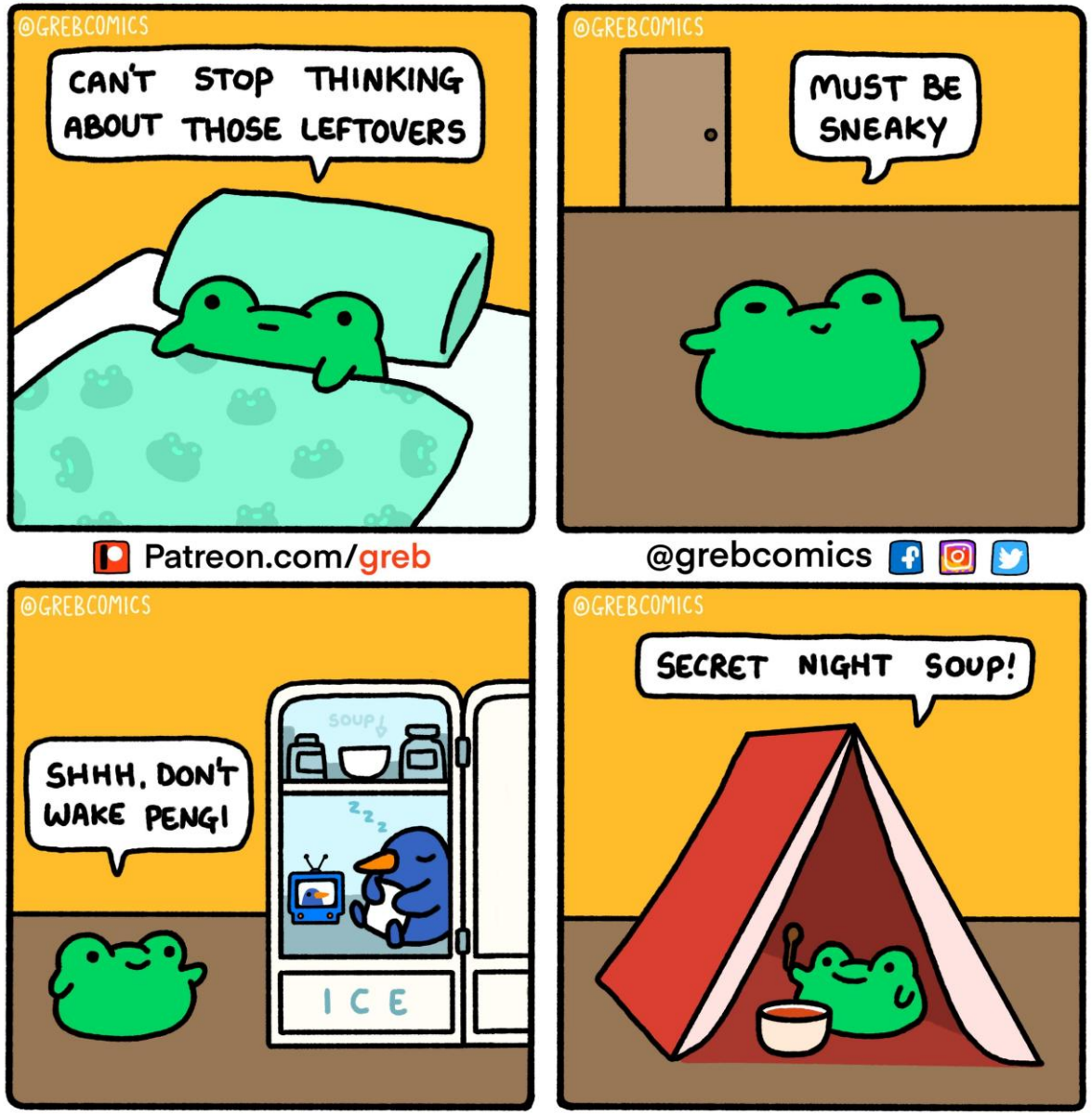
And if MB < MC, don't do it!

- Marginal benefits and marginal costs are those that are affected by the action.
- When you change either MB or MC, you change at least what some people will do.
  - We have seen that Bob eats more pizza at 0 per slice than at $1.00 per slice.
  - How many slices would Bob eat at $10 per slice?

- Same thing in "real world":
  - Would we expect consumers to buy the same amount of gasoline at $2 per gallon as at $4 per gallon?
  - Would we expect consumers to buy the same quantity of oranges if a great crop cuts the price in half?

- **People respond to incentives**. That is what the economic model predicts!
  - But the model predicts that they do so in a particular way: By comparing marginal benefits and marginal costs

Opportunity Costs



Objective

- Understand what is meant by the term “opportunity cost”
  - This will also help you understand why opportunity costs are the costs “at the margin,” and therefore the only costs that influence decisions

Opportunity cost

- Remember Principle 2 from the Economic Model: “Life consists of tradeoffs”?
  - Because all goods are scarce, each time we make a choice, we give up the opportunity to do something else
- The true cost of any choice is the opportunity we give up when we make that choice
  - What is the biggest cost of attending Clemson?
- To highlight the point, we use the term “opportunity cost”
  - The “opportunity cost” of anything is the next best alternative, because that is the opportunity sacrificed!
- We often express opportunity costs in $$ terms. But that is just a convenience

Opportunity cost examples

- What was the cost of what you did on Monday evening?
  - Foregone studying?
  - Whatever you would've done Tuesday morning but now you can't because you can't get out of bed and you feel like death?
- What is the cost of an apple?
  - A peach?
  - A pear?
  - Plus the difference in the price between them
- What is the cost of having a child?
  - The foregone earnings from a job?
  - Giving up on your life dreams?
- What is your cost of being at Clemson?
  - Tuition?
  - Foregone earnings?
    - If you would be working full time if you weren't a student
  - What about room and board/food?
    - Would you be paying for housing/food if you weren't a student?
    - Remember opportunity costs are costs marginal to the decision you're making.
      - If you'd be paying for food regardless of enrollment, then that cost isn't an opportunity cost!

Boeing’s big decision

- Boeing has invested $50 million in developing a design of a jet.
- Another $10 million is required to complete the design.
- One of Boeing’s engineers develops an alternative design that could be completed for only $7.5 million.
  - Assume the alternative design is just as good
- The engineer argues that because the alternative is cheaper, the original design should be dropped.
- His boss argues that because Boeing has spent $50 million already, the company can’t afford to abandon its original design.

Who is right?

Boeing's big decision (continued)

- The resources already expended are not opportunity costs – they are sunk, gone for good. Boeing can't get them back no matter what it does.
- The resources used from now on are all that Boeing can influence. Therefore, they are all that Boeing should consider.
- The relevant comparison is thus $10 million versus $7.5 million
  - These are the costs affected at the margin (i.e., by this decision)
  - These are thus the opportunity costs

The lesson: Good decisions focus on the costs affected and ignore sunk costs!

Boeing's big decision redux

- Boeing has invested $50 million in developing a design of a jet.
- Another $7.5 million is required to complete the design.
- One of Boeing's engineers develops an alternative design that could be completed for only $10 million.
  - Assume the alternative design is just as good
- The engineer argues that because the alternative is cheaper ($10m versus $57.5m), the original design should be dropped.
- His boss argues that because Boeing has only to spend $7.5 million to finish the original design, the company should stick with it.

Who is right?

Boeing's big decision redux (continued)

- The resources already expended are sunk. All that matters are the costs from now on ($7.5m versus $10m)
  - These are the costs affected at the margin (i.e., by this decision)
  - These are thus the opportunity costs

- **The lesson: Good decisions focus on the costs affected – the opportunity costs – and ignore sunk costs!**

Notice that opportunity costs are marginal costs for firms(and vice versa)

- Opportunity costs are those that are affected by the action. They are the costs that change at the margin!

- If costs can't be changed, they are sunk.
  - Sunk costs are gone, vanished, kaput . . . sunk! There is nothing you can do to get them back
  - Ergo they should not influence the decision.

- Does this mean that sunk costs are irrelevant?
  - They are certainly irrelevant to current and future decisions
  - Sunk costs were once marginal costs to some previously made decision

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