

# **EC 3101: Microeconomic Analysis II**

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All relevant details on EC3101 are in the [syllabus](#)

# Important Highlights

- Text book:  
**Intermediate Microeconomics**: A modern approach by Hal R. Varian (8<sup>th</sup> edition)
- One **midterm** and one **final** exam (check syllabus for details)
- Please **do not email** material, lecture or exam related questions. Post your questions precisely on IVLE Forum and they will be answered in a timely manner. You must first check to see if your question has already been answered.
- If you have questions that involved **long or mathematical explanations** then you need to see me or your tutor personally.
- You may consult me during my “**walk-in office hour**” or sign-up for my “**by appointment office hour**.” **Sign-up sheet** will be posted on my office door, you can put your name in a single time-slot on the sign-up sheet.

# Important Highlights

- **Recording of lecture will not be provided.** If you miss a lecture you may consult the material available on IVLE to catch-up. No out-of-class help can be provided as a substitute unless there are serious medical reasons that made a conflict unavoidable
- **No make-up exam/tutorials** will be provided for missed exam/tutorials
- Exceptions will be made only to keep the rules consistent with **NUS policies**
- **Switching of tutorials cannot be arranged.** If you need to have a different time slot, you must talk to the General Office
- If you need any clarification please consult the lecture notes/materials and syllabus before consulting your tutor or lecturer

# What is EC 3101 about?

- Microeconomic theory is about modeling individual consumer and firm behavior in a way that allows quantitative analysis
- EC 3101 will be a *transition* from graphical to mathematical descriptions
- We will keep the coverage broad and the mathematics preliminary, and leave it for EC 4101 and other modules to cover them in greater details

# Breaking the market

- The market consists of
  - The demand side
  - The supply side
  - Government
- Demand side consists of consumers
  - Consumer's choice
- Supply side consists of
  - Firm's choice

# Chapter Two

## Budget Constraint on Choice

# Consumption Choice Sets

- **Consumption choice set:** Collection of all consumption choices available to the consumer.
  - E.g., (4 slices of pizza, 2 glasses of coke, 1 movie,...), (2 slices of pizza, 3 glasses of coke, 4 movies,...), .....
- What constrains consumption choice?
  - Resource or regulatory limitations – budget constraint

# Budget Constraints

- Consumption bundle containing  $x_1$  slices of pizza,  $x_2$  cans of coke and so on up to  $x_n$  units of commodity  $n$ :  $(x_1, x_2, \dots, x_n)$
- Commodity prices:  $(p_1, p_2, \dots, p_n)$



# Budget Constraints

- Q: When is a bundle  $(x_1, \dots, x_n)$  affordable at prices  $(p_1, \dots, p_n)$ ?

- A: Affordable when

$$p_1x_1 + \dots + p_nx_n \leq m$$

where  $m$  is the consumer's (disposable) income.

# Budget Set

- Consumer's consumption choice set is

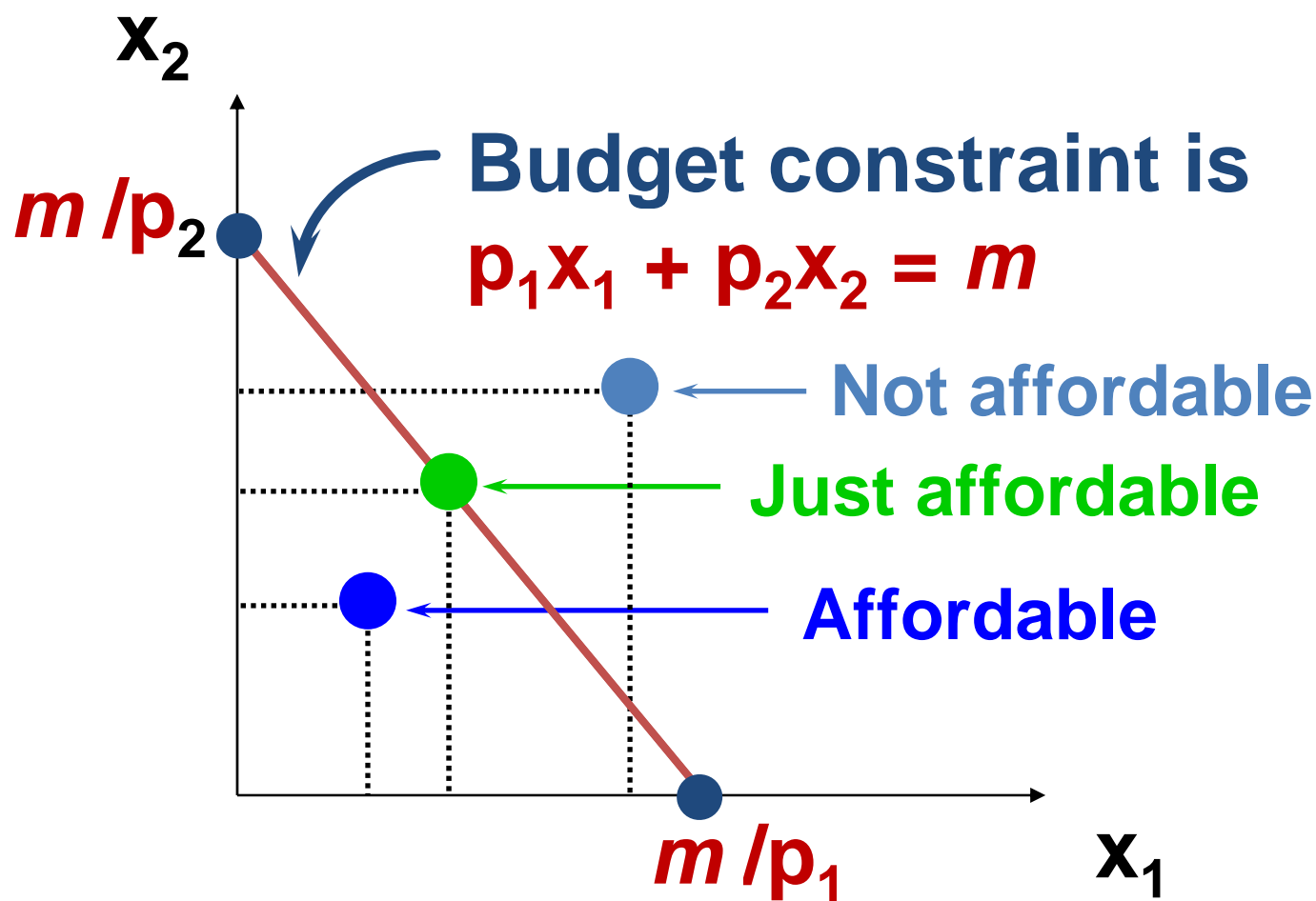
$$\{ (x_1, \dots, x_n) \mid x_1 \geq 0, \dots, x_n \geq 0 \}$$

- The consumer's **budget set** is the set of all affordable bundles;

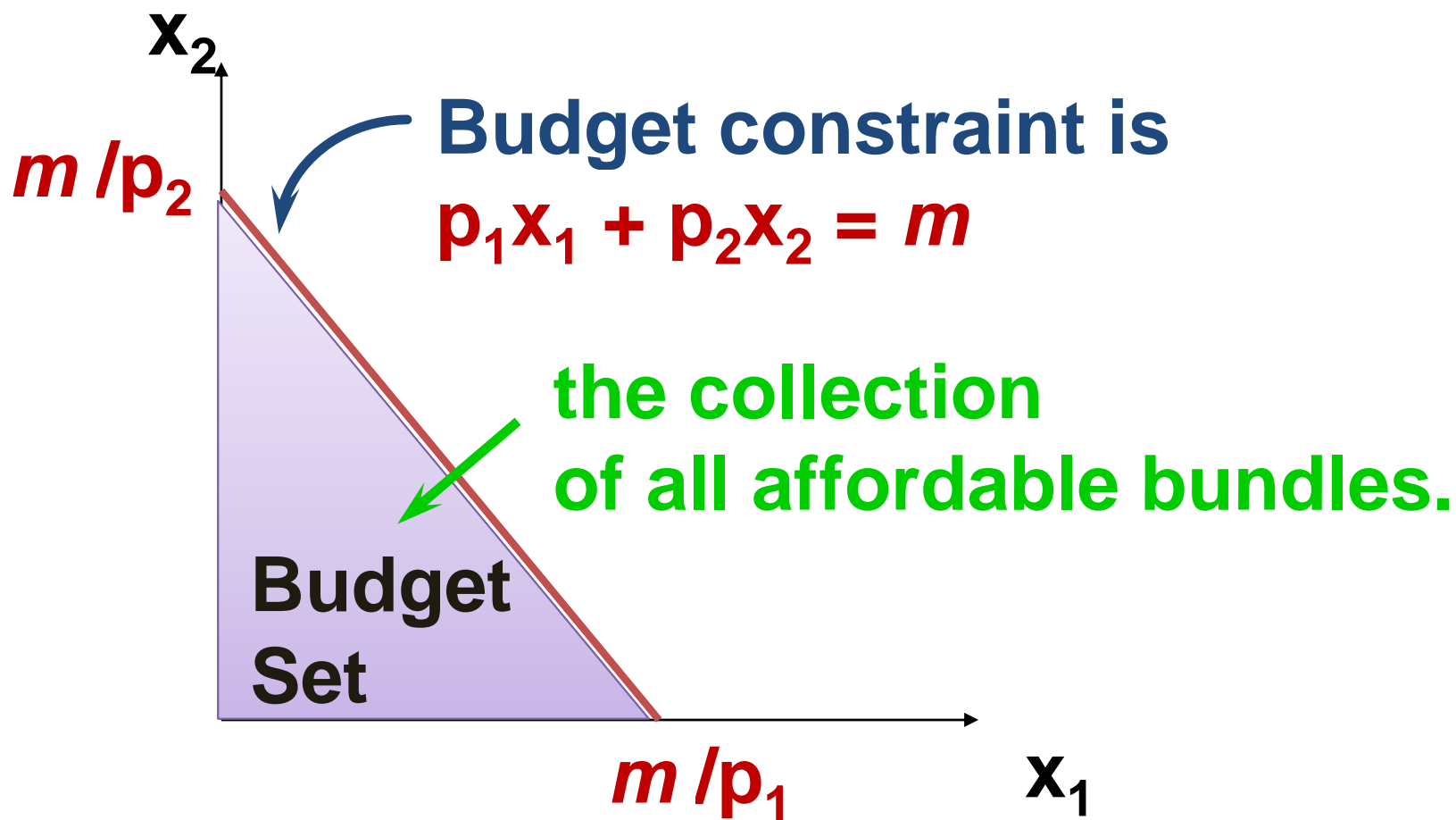
$$B(p_1, \dots, p_n, m) =$$

$$\{ (x_1, \dots, x_n) \mid x_1 \geq 0, \dots, x_n \geq 0 \text{ and } p_1x_1 + \dots + p_nx_n \leq m \}$$

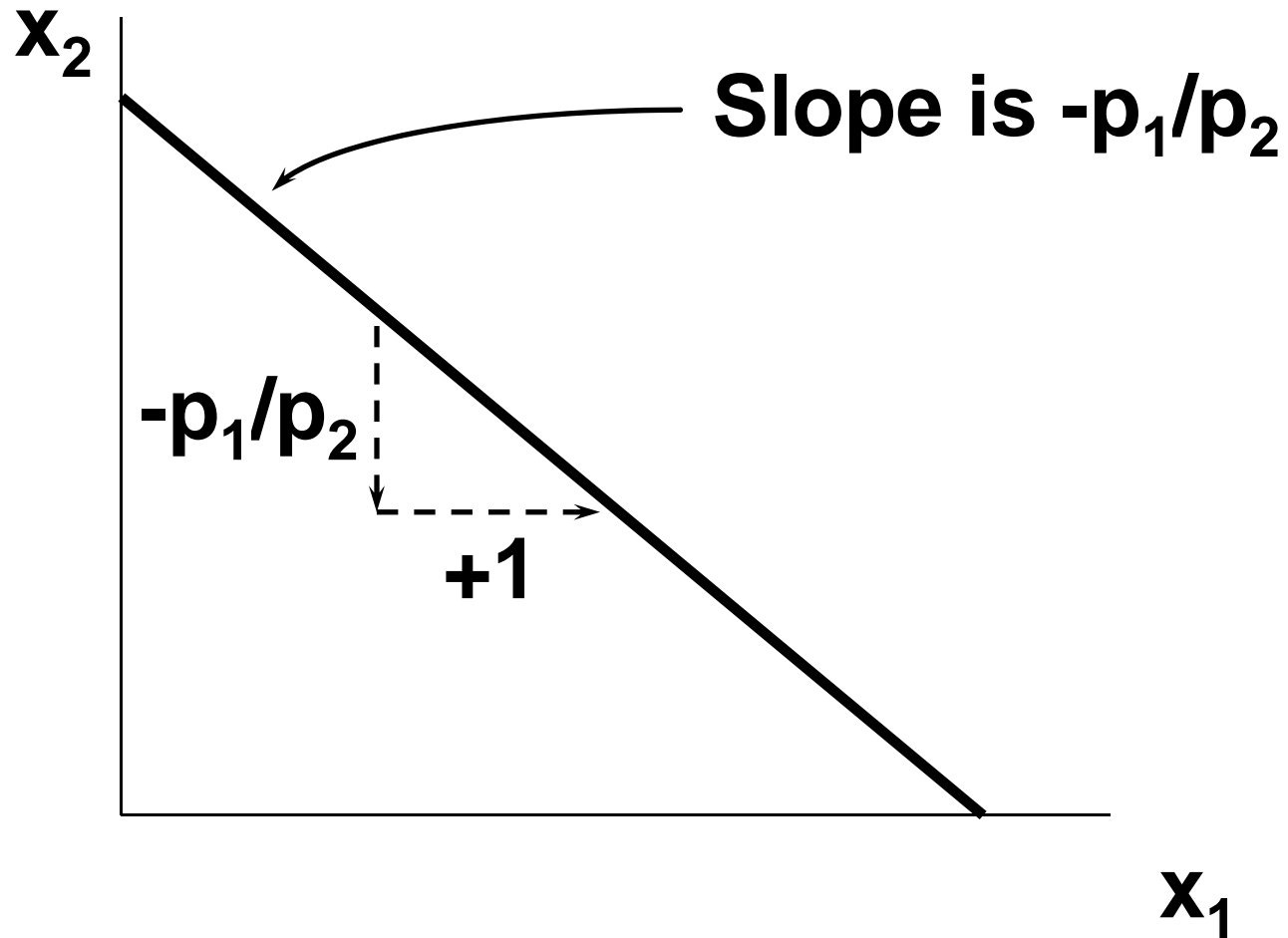
# Budget Set and Constraint for Two Commodities



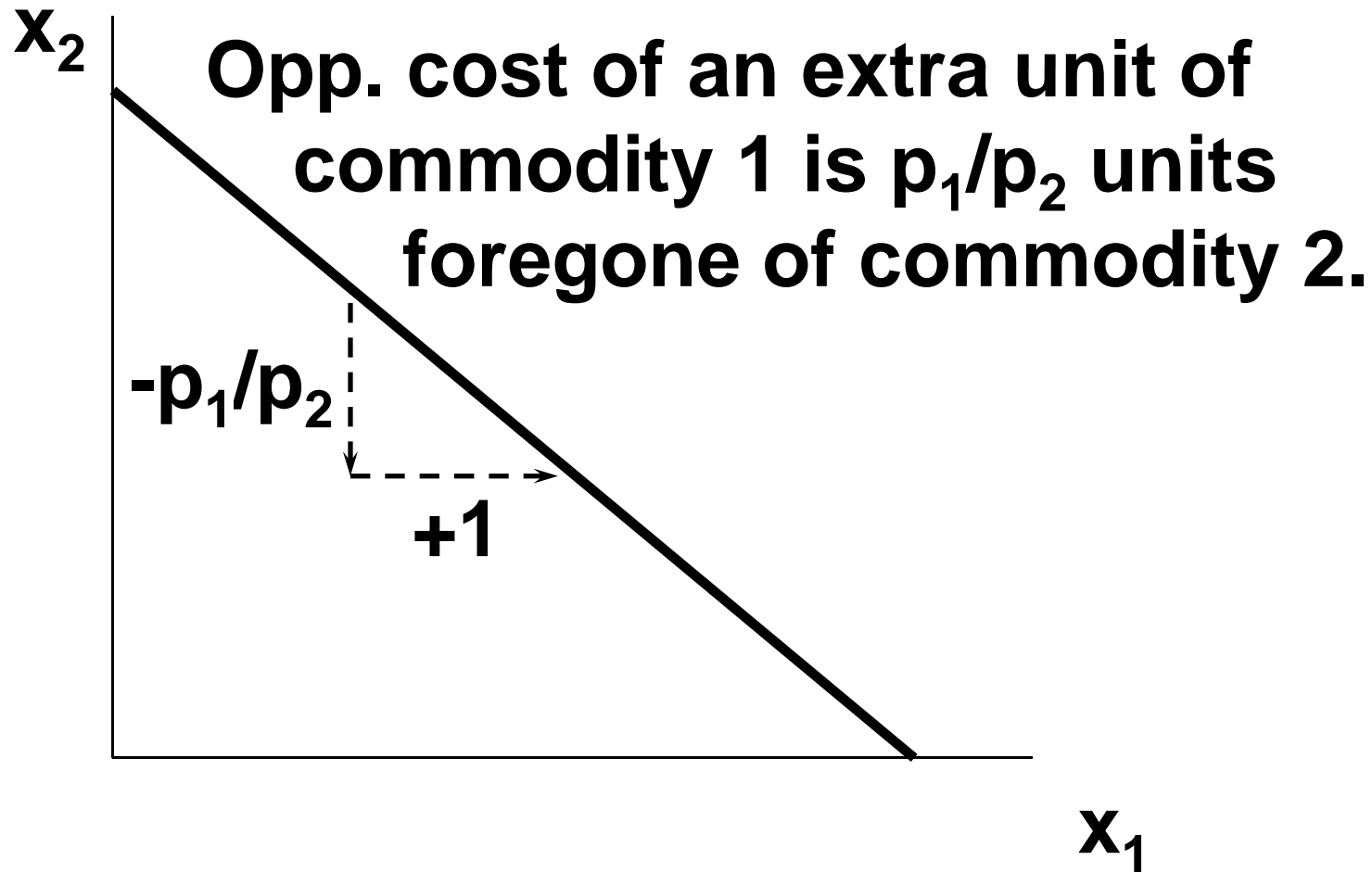
# Budget Set and Constraint for Two Commodities



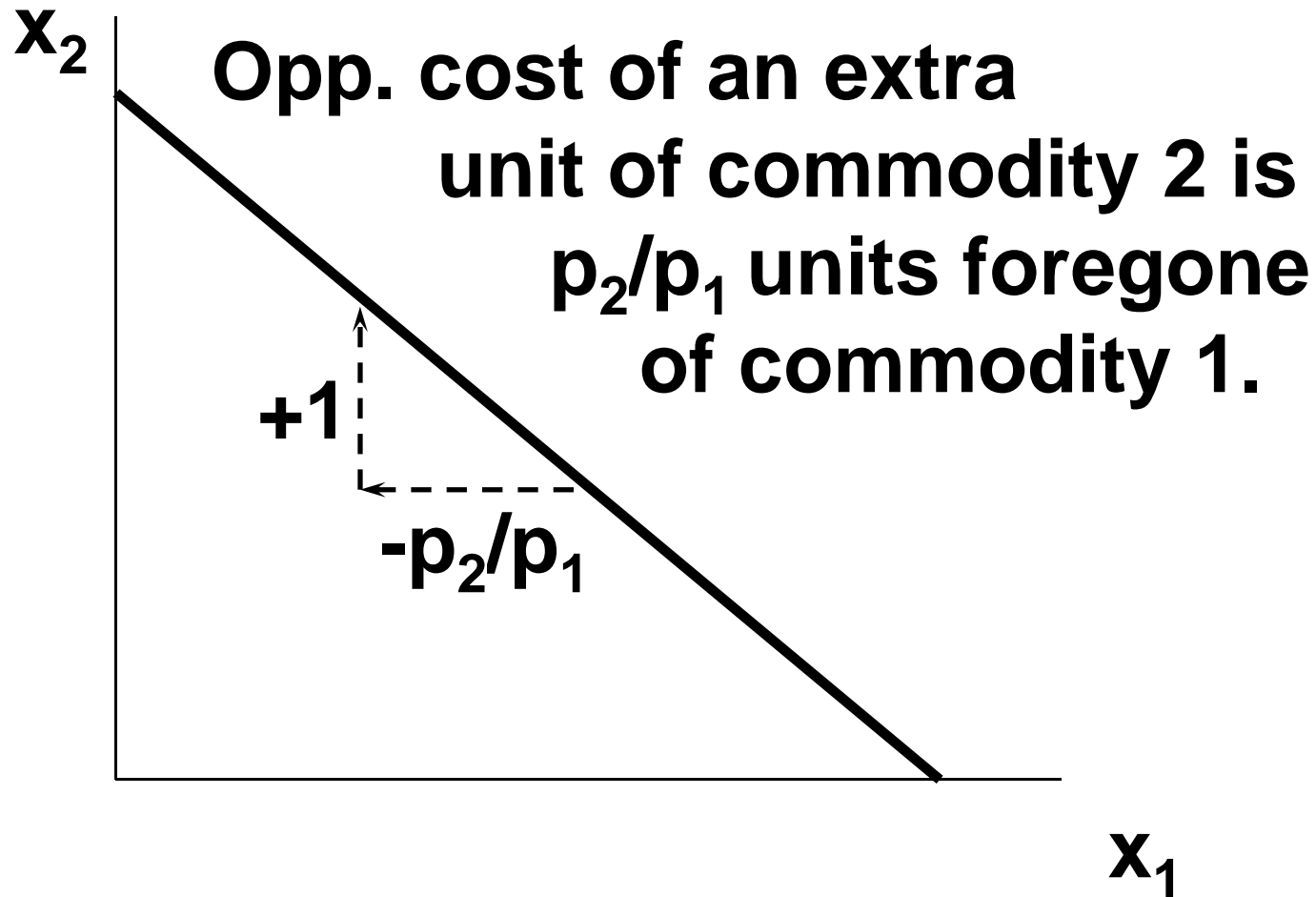
# Mathematics of Budget Constraint



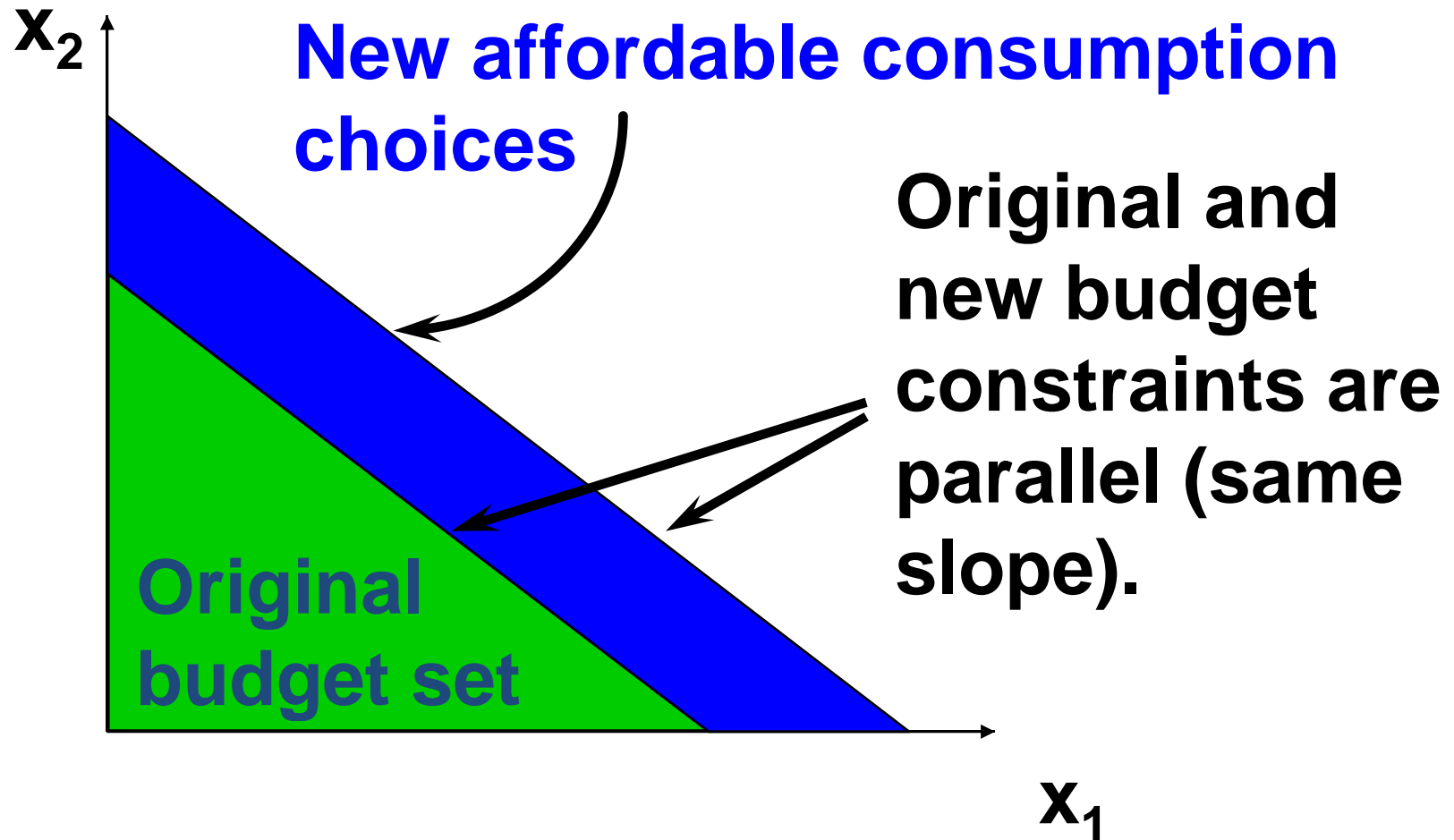
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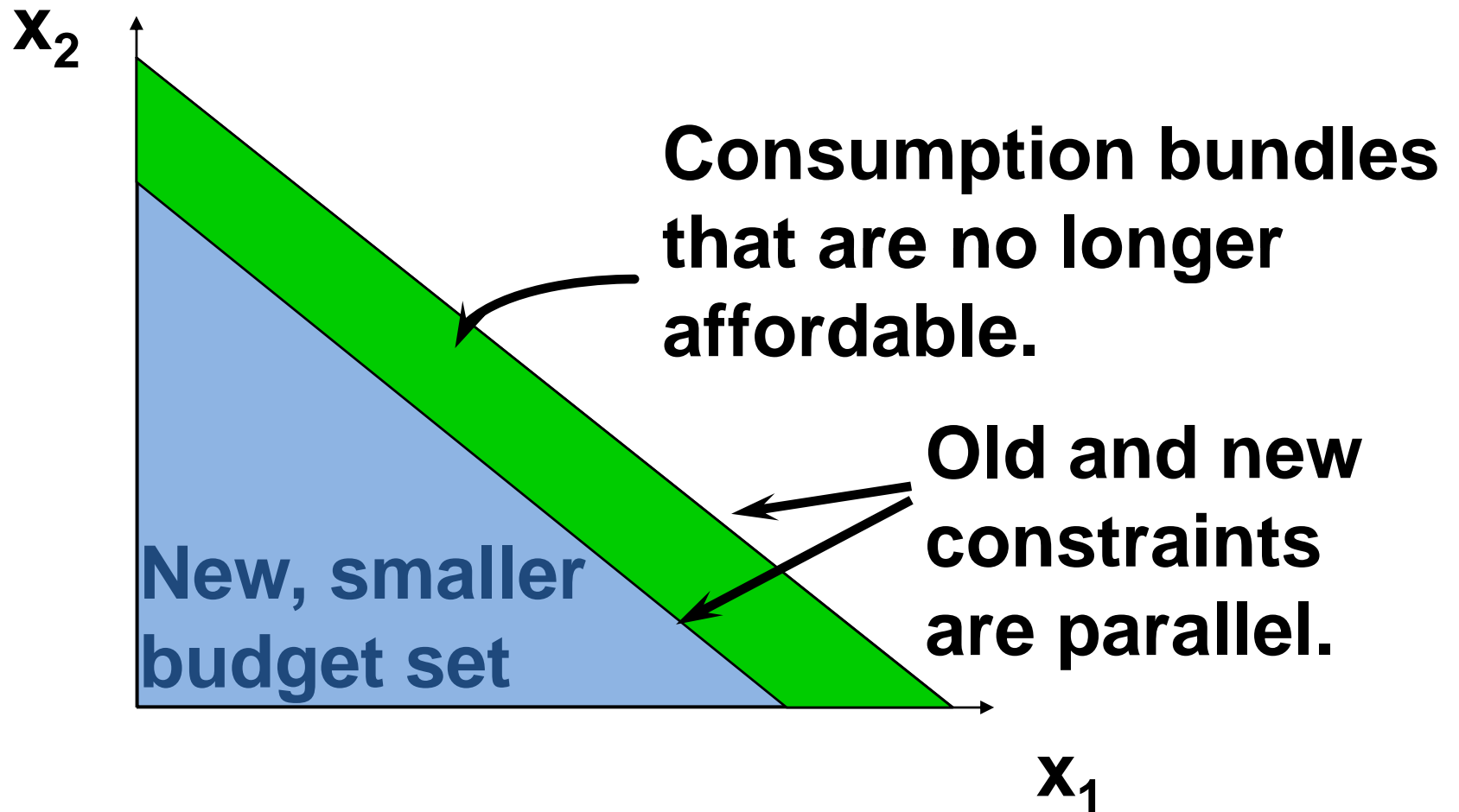


Higher income (**m**) gives more choice

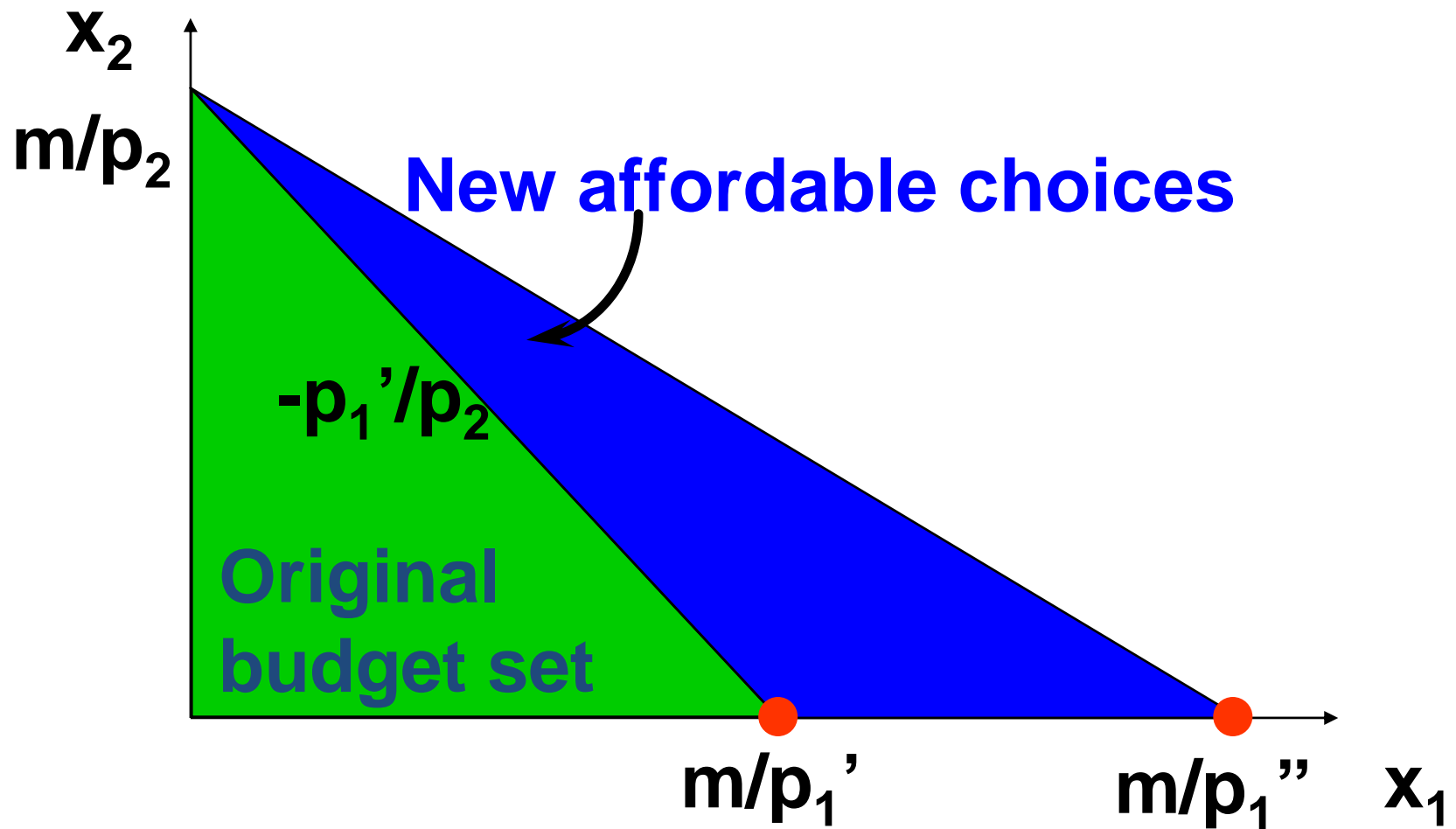




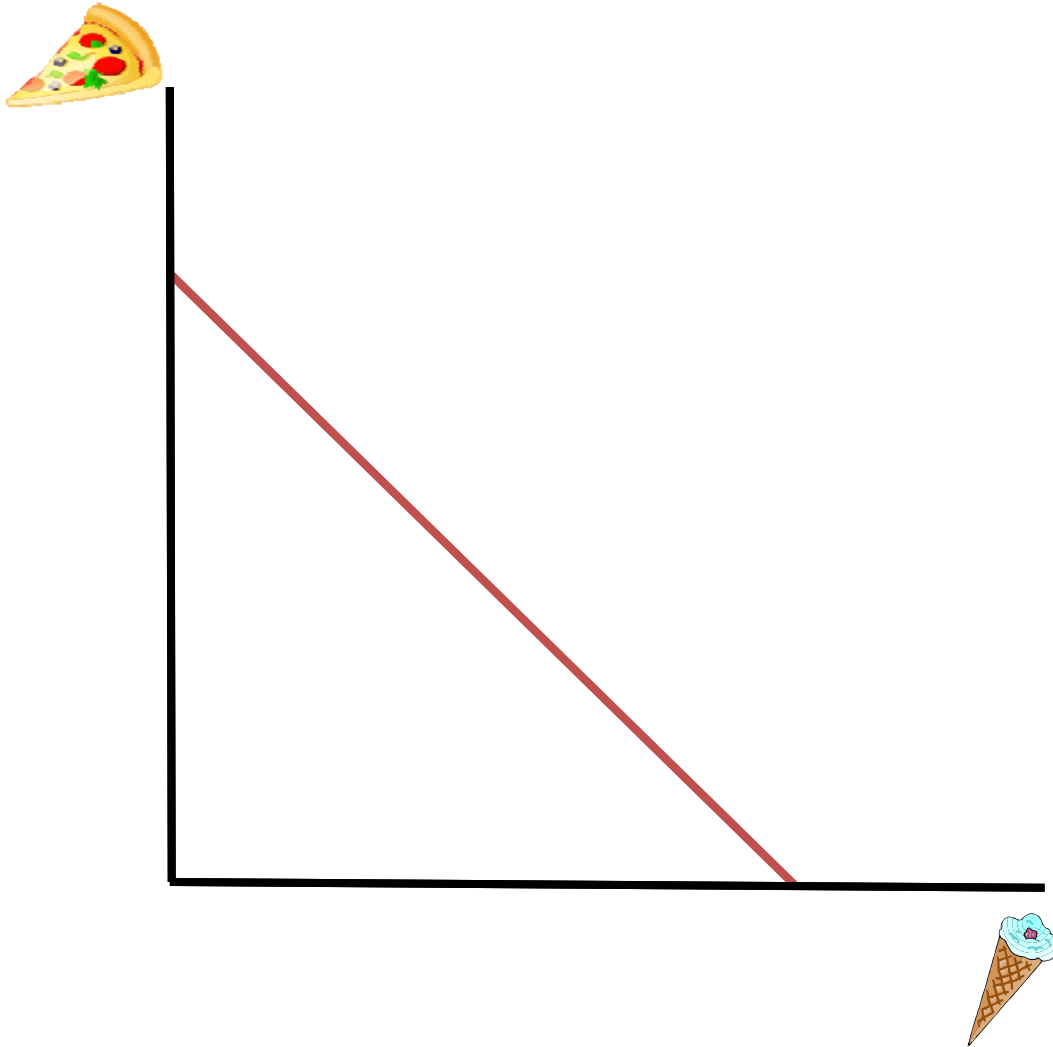
Lower income gives fewer choices?



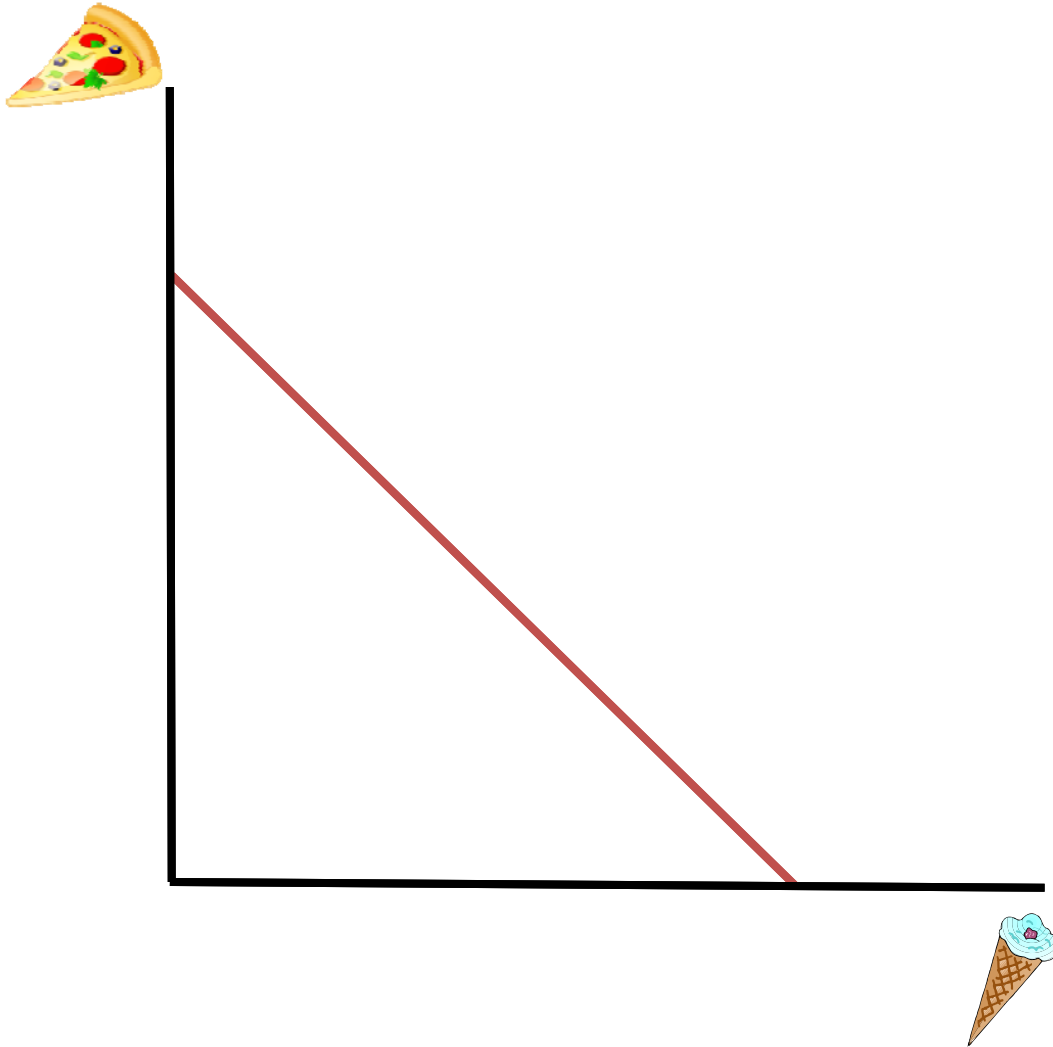
Effect as  $p_1$  decreases from  $p_1'$  to  $p_1''$ ?



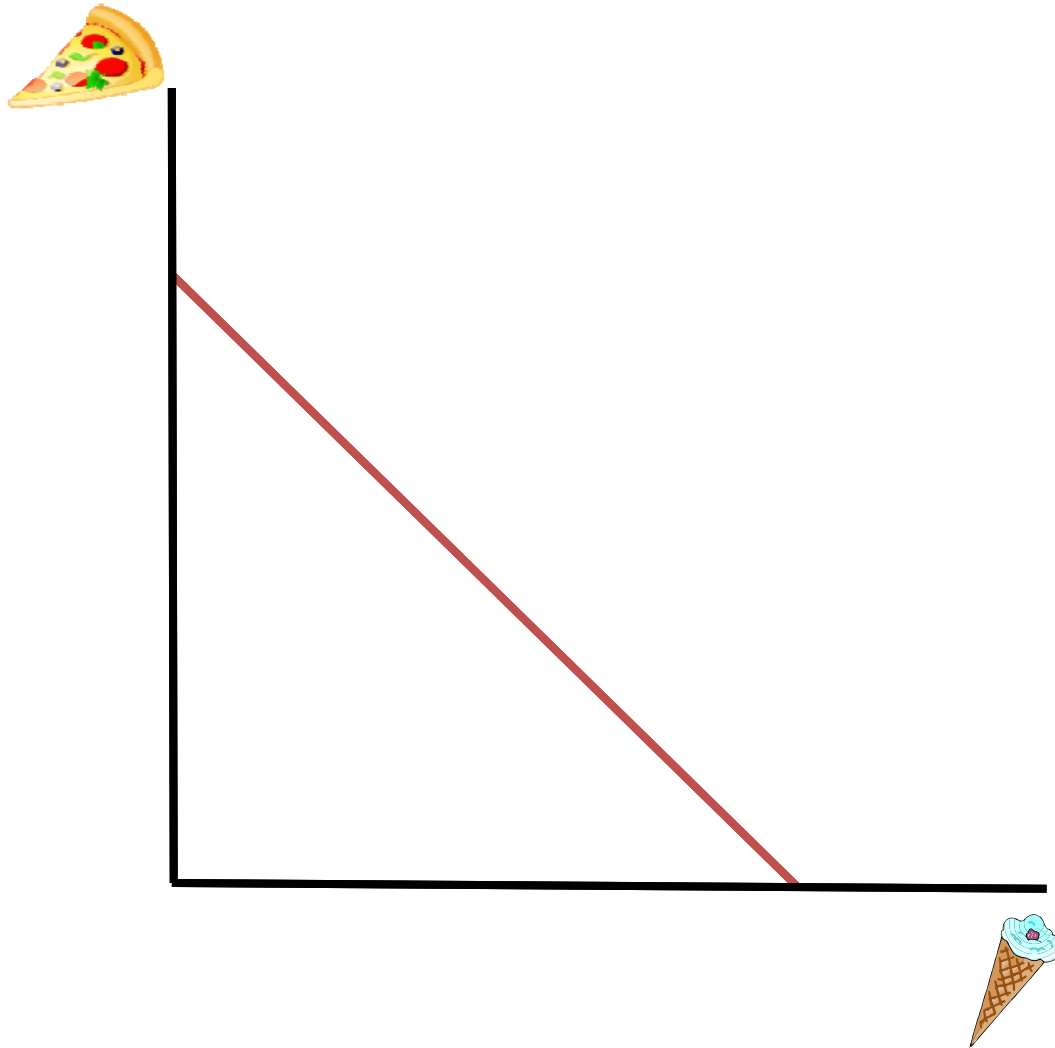
## Changes to Budget Constraint: Ad Valorem Tax



## Changes to Budget Constraint: Rationing



Taxing ice-cream greater than  $x^*$



- Skip Food Stamps example