Elements of Macroeconomics TA Session 1: Introduction and Textbook Appendix Chapter 1

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Introduction

- TA: Haruki Shibuya, a 3rd-year JHU Economics Ph.D. student
- 27 y.o., from Japan. Univ. of Tokyo, Kyoto Univ. alumnus

- Who is a TA (teaching assistant)? My role includes: holding approx. 10 TA sessions + weekly TA office hours and grading exams, etc.
- What are TA sessions? They are mini-lectures/discussion sessions to give students supplemental info and to review homework.
- What are TA office hours? In TA office hours, the TA is available to answer/discuss questions. (time: to be announced)

Introduction

- You have approx. one assignment for each chapter in the course
- Submission means full marks. But…
- you have 3 midterm exams and 1 final exam
- Exams will be mostly based on homework, so review them carefully

Introduction

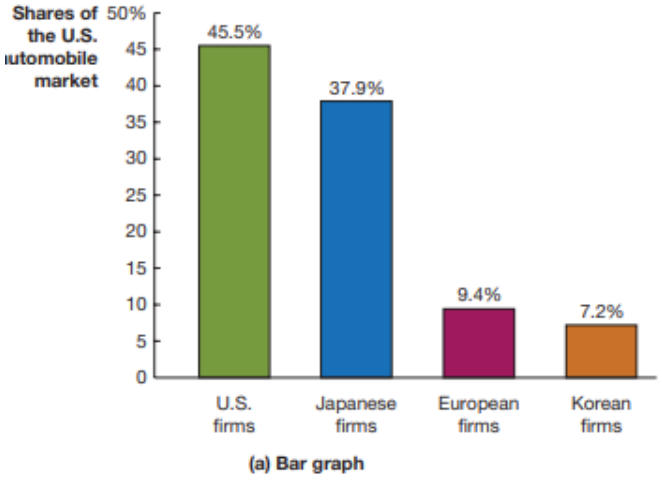
- What is macroeconomics?
- Macroeconomics focuses on the behavior of overall economy, e.g., GDP, inflation, interest rates, foreign exchange rates, balance of payments.
- Often compared with microeconomics, whose focus is more on individuals
- But the boundary is not so clear (cf. microfoundations)
- Read syllabus/materials to get more ideas

Textbook appendix chapter 1

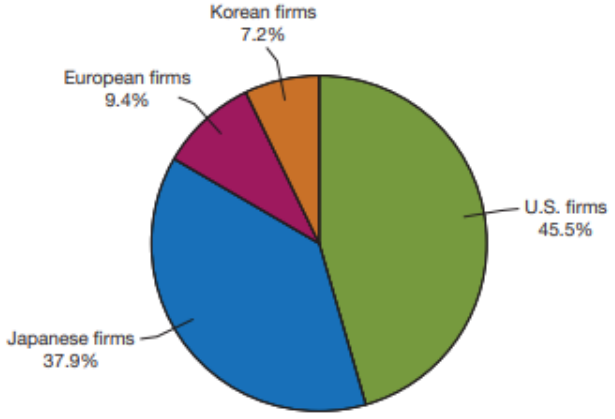
- Today we discuss appendix Ch 1 of the textbook
- With some additional info

- 1. Graphs
- 2. Demand curve

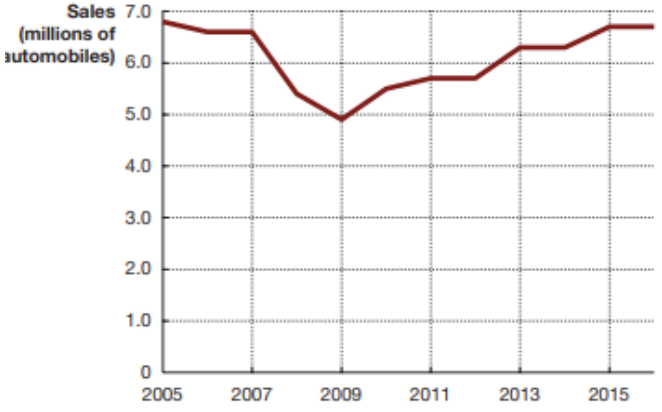
Graphs

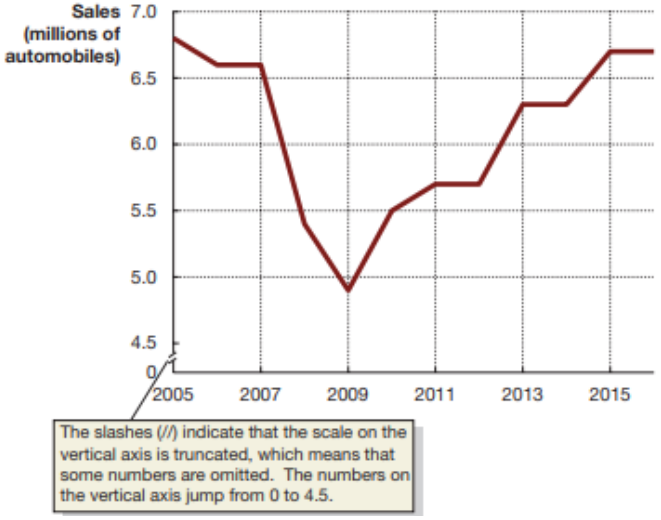


(a) Bar graph



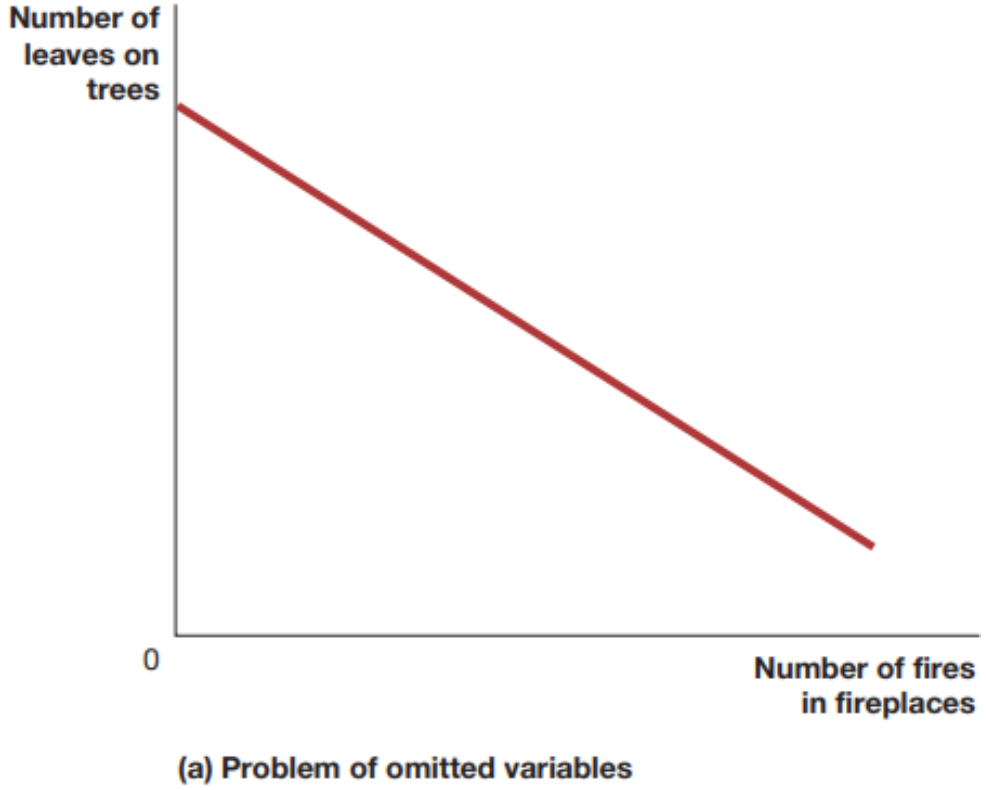
(b) Pie chart



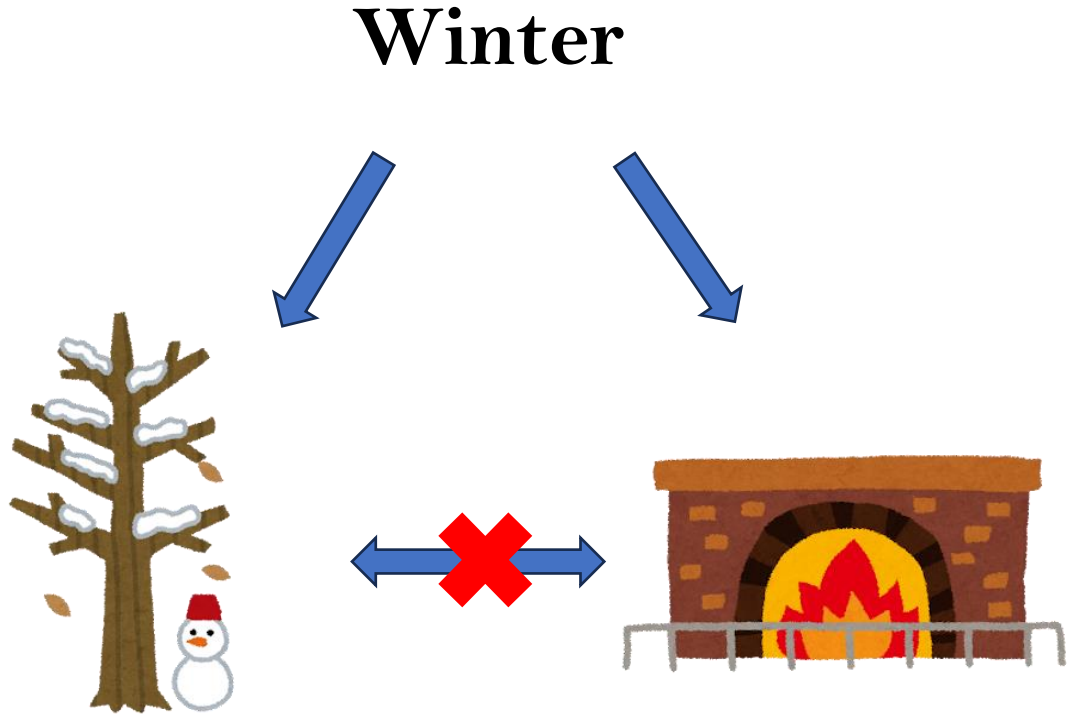


- There are many types of graphs
- Point: choose appropriate one
- Don't get fooled by how it looks like
- Don't fool others/yourself

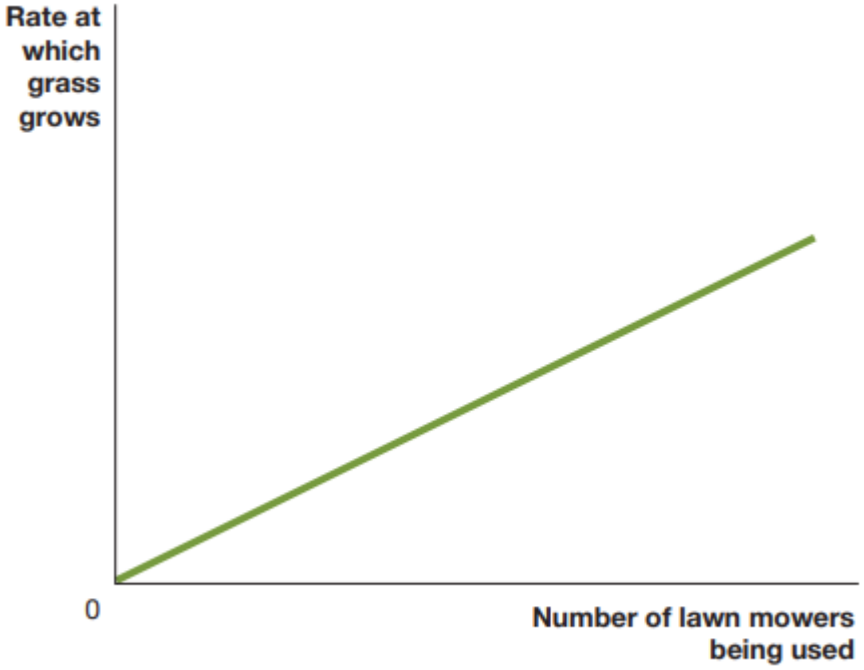
Correlation ≠ causation



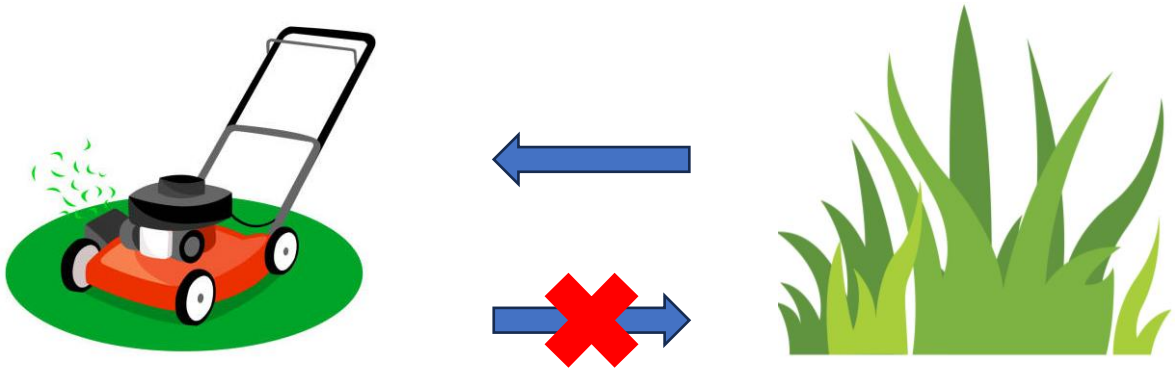
(a) Problem of omitted variables



Correlation ≠ causation

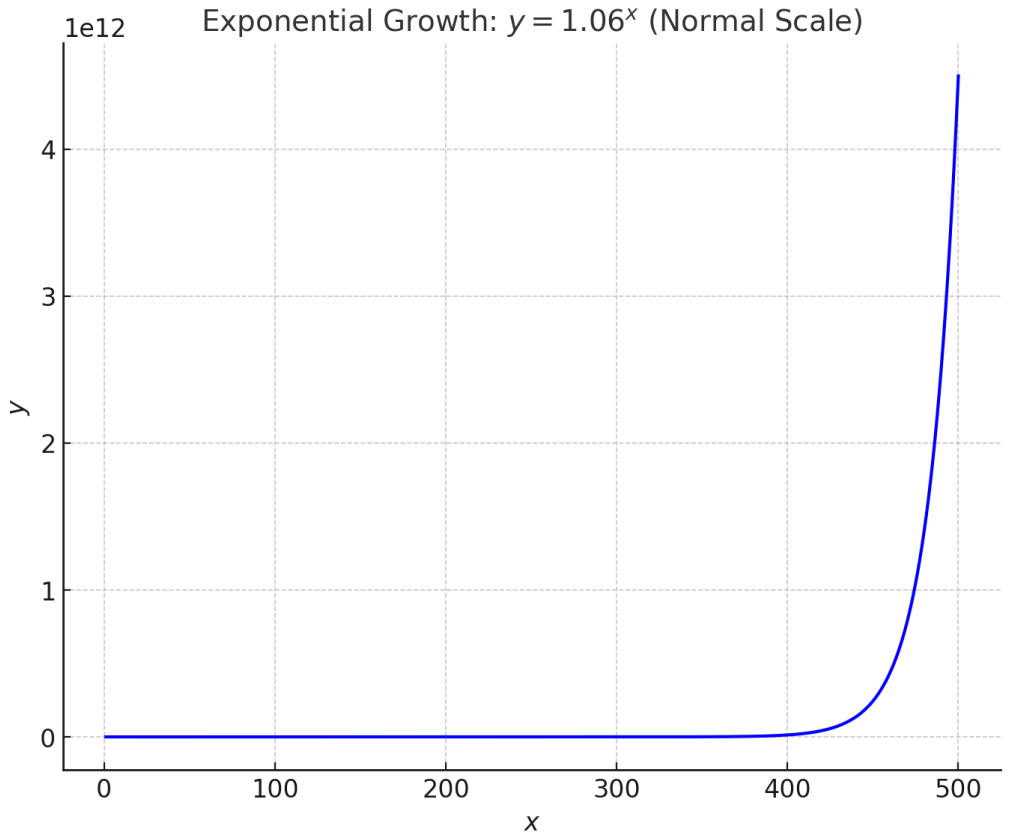


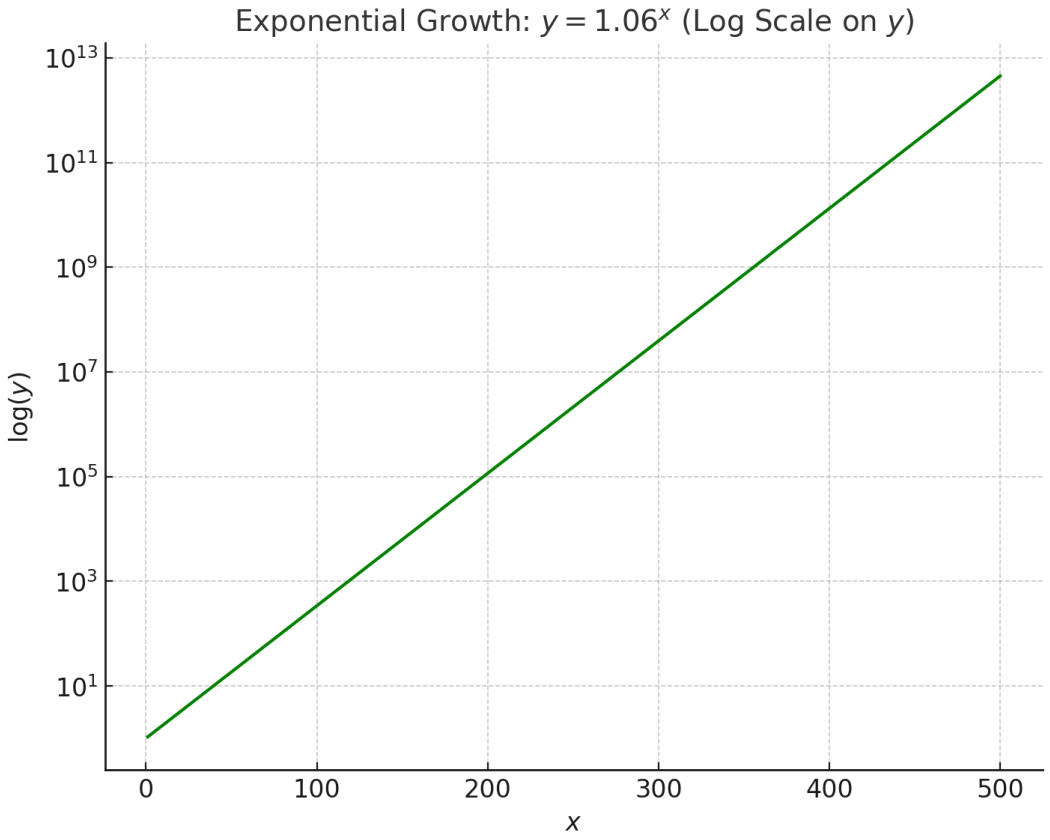
(b) Problem of reverse causality



Graphs

- Useful tool: log scaling





Graphs

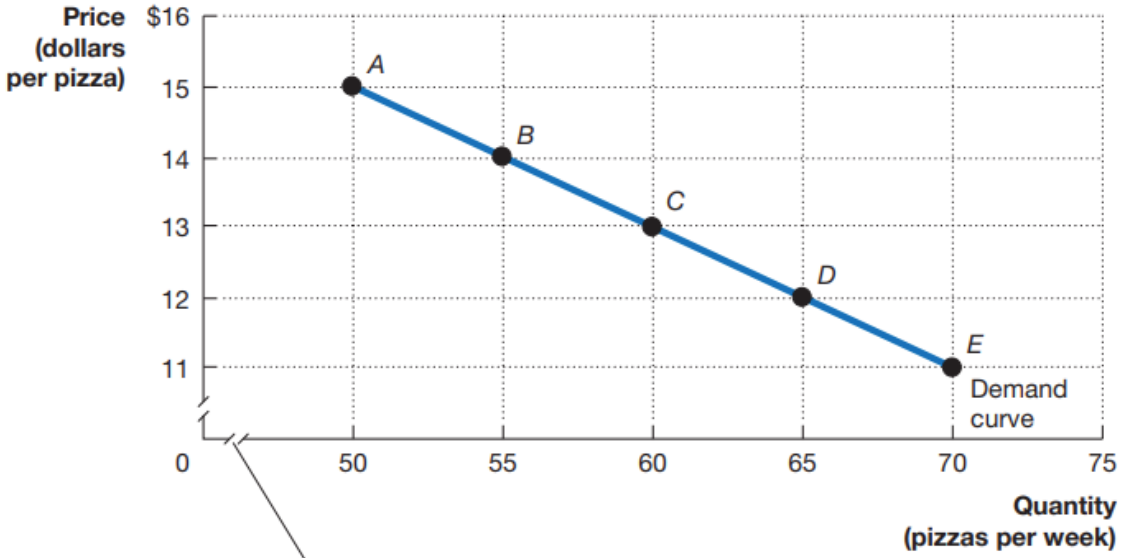
S&P 500 Index - 90 Year Historical Chart (inflation-adjusted)

Normal Scale

Log Scale

Demand curve

Price (dollars per pizza)	Quantity (pizzas per week)	Point
$15	50	*A*
14	55	*B*
13	60	*C*
12	65	*D*
11	70	*E*

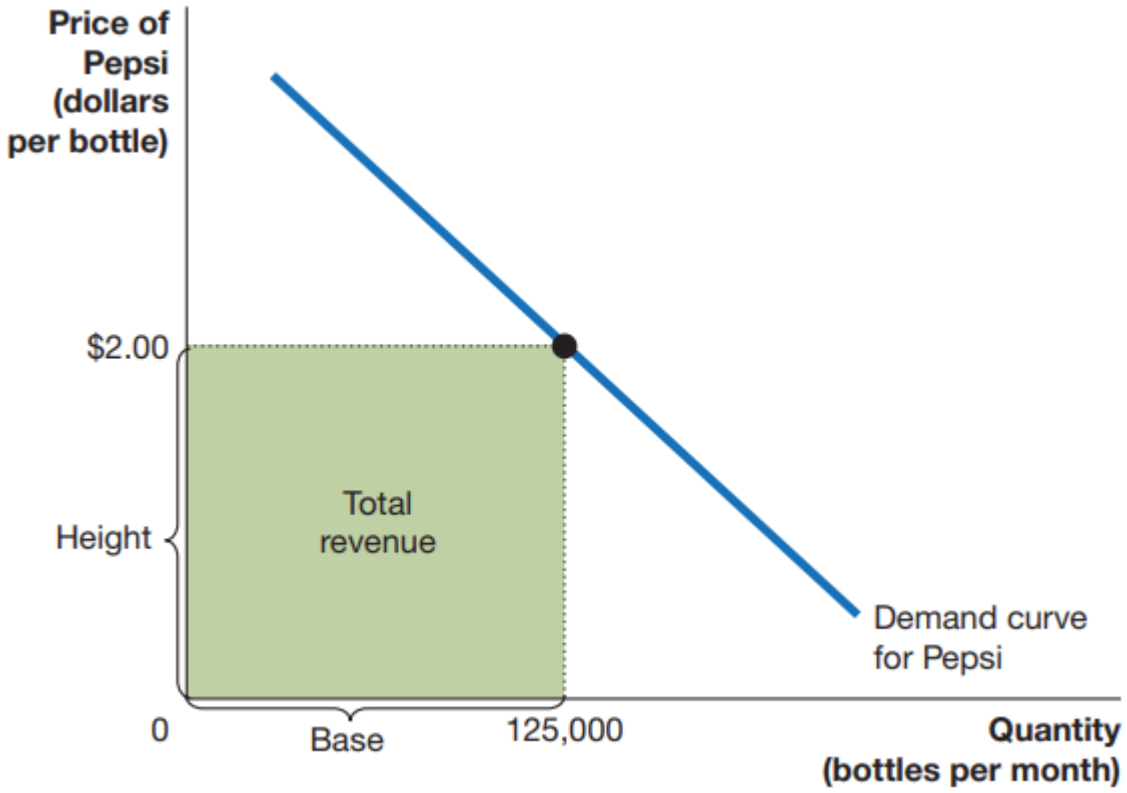


As you learned in Figure 1A.2, the slashes (//) indicate that the scales on the axes are truncated, which means that numbers are omitted: On the horizontal axis numbers jump from 0 to 50, and on the vertical axis numbers jump from 0 to 11.

- Demand curve: shows price-quantity relationship for consumers in a particular market
- We often write as $q = D(p)$
- E.g., $q = D(p) = -p/5+25$
- Slope $= -1/5$

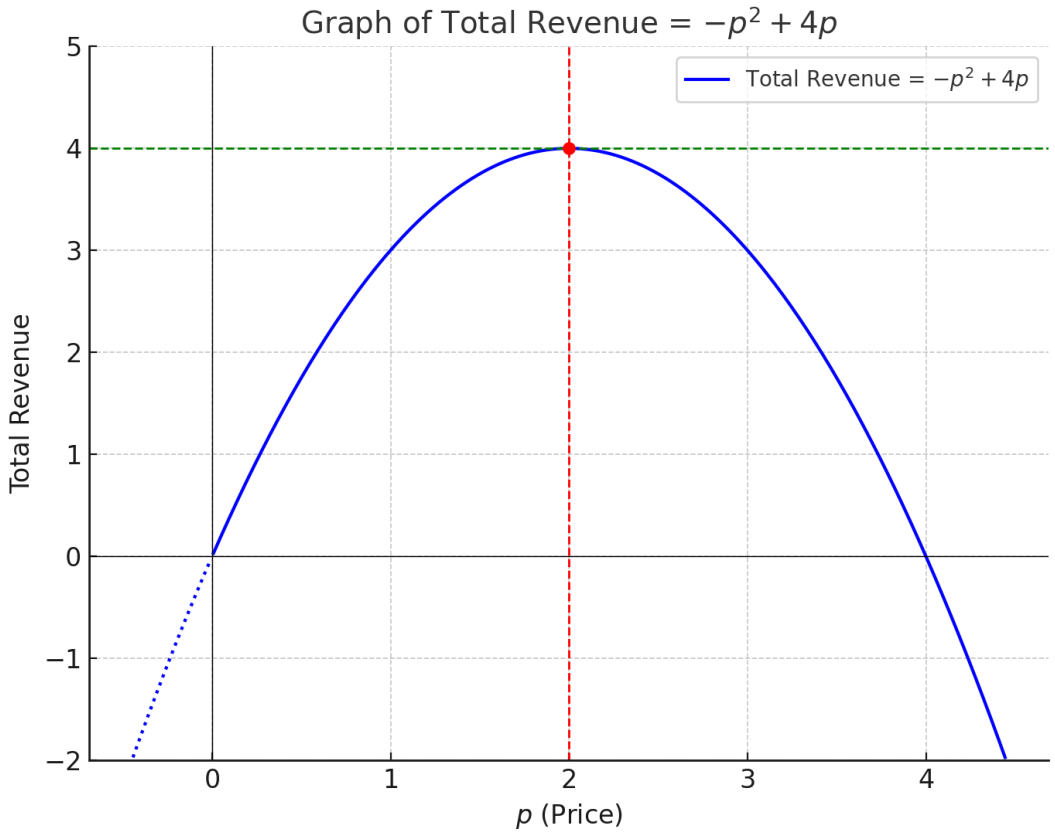
$$\text{Slope} = \frac{\text{Change in value on the vertical axis}}{\text{Change in value on the horizontal axis}}$$

Demand curve



- Assume Pepsi can choose the price and consumers just accept it (monopolistic situation)
- Total revenue = price × quantity
- E.g., if $q = D(p) = -p+4$
- $TR = p \times q = -p^2 + 4p$
- $\ldots = -(p+2)^2 - 4$

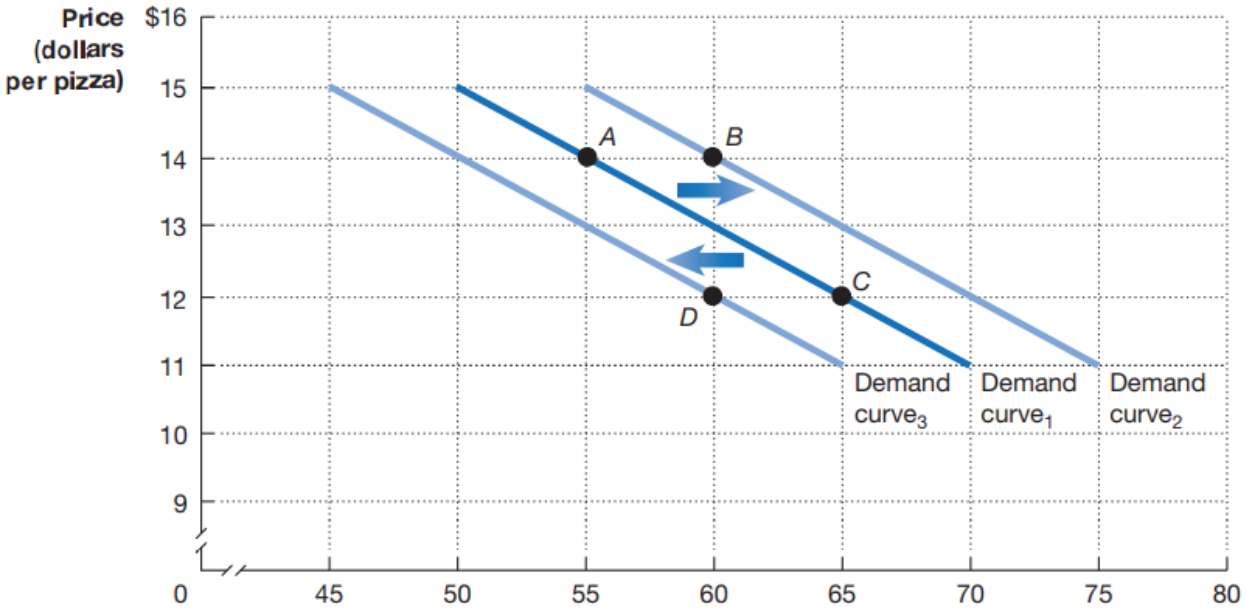
Demand curve



- Assume Pepsi can choose the price and consumers just accept it (monopolistic situation)
- Total revenue = price × quantity
- E.g., if q = D(p) = -p+4
- TR = p × q = -p^2 + 4p
- … = - (p-2)^2 +4
- p = 2 gives the max revenue

Demand curve shifts

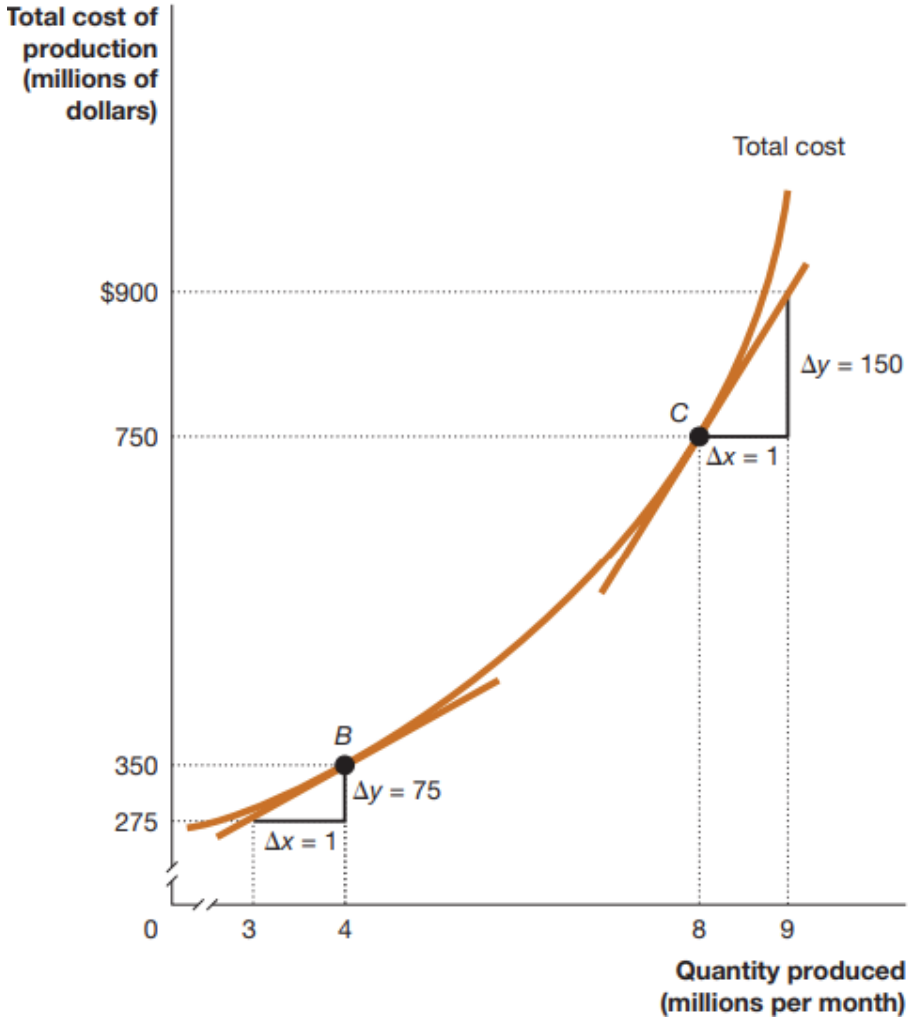
Price (dollars per pizza)	Quantity (pizzas per week) When the Price of Hamburgers = $1.00	When the Price of Hamburgers = $1.50	When the Price of Hamburgers = $2.00
$15	45	50	55
14	50	55	60
13	55	60	65
12	60	65	70
11	65	70	75



- Demand curve can shift when an external variable changes
- E.g., pizzas being more popular when hamburgers are more expensive (they are substitutes)
- The demand curve shifts rightward

- Note that a point moving on the curve ≠ a shift of the curve itself

Some formulae



- Recall:

$$\text{Slope} = \frac{\text{Change in value on the vertical axis}}{\text{Change in value on the horizontal axis}}$$

- But how about the slope of a curve?
- slope of a curve = the slope of the tangent line
- Cf. differential coefficient

Some formulae

- Percentage change example: $$\left(\frac{GDP_{2016} - GDP_{2015}}{GDP_{2015}}\right) \times 100$$

- Cf. 'annualized' growth rate, YoY, and QoQ