

Handout 02 - ECON 101 (Fall 2026)

Demand and Consumer Choice

1 Reading Demand as a Decision Rule

Demand describes how much a buyer is willing *and able* to purchase at each possible price, holding other relevant conditions fixed. **Quantity demanded** is the amount at one particular price. Specify the good, the buyers, and the time period. Buyers are **price takers**: they choose a quantity at the price offered.

In the module's buyer model, the height of an individual demand curve measures **marginal willingness to pay**: the most the buyer would pay for one additional unit. Compare this benefit, measured in dollars, with the unit's price. With diminishing marginal benefit, further units are worth less, so a lower price makes more units worthwhile.

The buyer's rule. Write the extra benefit in dollars as MB (marginal benefit) and the price as P . Buy additional units while $MB \geq P$; stop before the next unit has $MB < P$. Equality leaves surplus unchanged, and the textbook convention includes that unit. With whole units, exact equality need not occur.

For example, suppose you value three successive cups of coffee at \$5, \$3, and \$1. At \$2 per cup, the first two are worthwhile; the third is not. A lower price of \$1 makes the third cup worthwhile too. Your willingness to pay for each cup stayed the same: the price changed which cups you buy.

A lower price makes a good cheaper *relative to alternatives* (the substitution effect) and lets the same money buy more (the income effect). A price-induced change in purchasing power is part of a *movement along* demand. A separate change in money income can *shift* it.

2 Explaining a Shift Without Guessing

First name the good whose demand you are analyzing. Then identify what changed. If only *that good's current price* changed, move along the existing curve. For a change in another condition, compare the old and new quantities *at the same price*. More at that price means a rightward shift; less means a leftward shift.

Substitutes can replace each other, such as tea and coffee. **Complements** are used together, such as printers and ink. A **normal good** is one you buy more of when your income rises; an **inferior good** is one you buy less of. These terms describe the response to income, not the quality of the product.

Change	Effect on demand for X	Reason
Income rises; X is normal	Rightward	The buyer wants more X at the same price.
Income rises; X is inferior	Leftward	The buyer switches toward preferred alternatives.
Price of a substitute rises	Rightward	X becomes relatively attractive.
Price of a complement rises	Leftward	Using X together with the other good becomes more expensive.
Preferences turn toward X	Rightward	The benefit from X is greater at a given price.

The curve you name matters. If tea becomes more expensive, there is a movement along the demand curve for *tea*. If buyers switch to coffee, demand for *coffee* shifts right: they want more coffee even though its price has not changed. One event can affect two different curves in different ways.

In an exam explanation, name what changed, explain its effect at a fixed price, and label the corresponding graph. Analyze multiple changes separately: opposing shifts have an ambiguous net effect unless their relative sizes are known. Demand alone cannot determine the market price; that also requires supply.

Where to revisit the material. Demand and the buyer's rule: slides 23–40; textbook Section 2.2, pp. 39–43.

Movements and shifts: slides 77–100; worksheet Q1–4; textbook Sections 2.4–2.5. The slides also cover expectations, network effects, and congestion.

3 Choosing What to Buy with a Limited Budget

3.1 Affordability and desirability are separate checks

An option can be appealing but too expensive. First check what you can afford; then compare the satisfaction from the affordable options. Let x and y be the quantities of two goods, P_x and P_y their prices, and I the money available. The small letters below P identify the good. Spending on each good is its price times its quantity, so affordability means $P_x x + P_y y \leq I$. The **budget line** shows combinations that spend exactly I :

$$P_x x + P_y y = I \quad \Longleftrightarrow \quad y = \frac{I}{P_y} - \frac{P_x}{P_y} x.$$

With x horizontal, the intercepts are I/P_x and I/P_y and the slope is $-P_x/P_y$. One more unit of x costs P_x/P_y units of y forgone. For example, if x costs \$4 and y costs \$2, one more x uses money that could buy two units of y . This explains the slope of -2 .

Utility means satisfaction. **Total utility (TU)** is satisfaction from all the units consumed; **marginal utility (MU)** is the extra satisfaction from one more unit. If total utility rises from 12 to 20 after another unit, that unit's marginal utility is $20 - 12 = 8$. Diminishing marginal utility means each extra unit adds less; total utility can still rise. Utility-table scores, or "utils", are not dollars.

Choosing within the budget. Dividing marginal utility by price gives extra satisfaction *per dollar*. If another unit of x gives 12 utils and costs \$4, it gives $12/4 = 3$ utils per dollar. Compare this with the other good's ratio, rather than comparing marginal utilities alone. When you can adjust quantities in small amounts and choose some of both goods, the best choice equalizes these ratios:

$$\frac{MU_x}{P_x} = \frac{MU_y}{P_y}, \quad P_x x + P_y y = I.$$

If a dollar spent on x adds more satisfaction than a dollar spent on y , moving a little spending from y to x improves the choice. As you buy more x , its marginal utility typically falls, bringing the ratios closer together.

Whole units need a final check. A table may allow only whole pizzas or drinks, so equal ratios may be impossible. Compare affordable combinations and choose the one with the highest total utility. There can be money left over if it cannot buy another beneficial unit.

3.2 Translate equations into the units on the graph

Demand graphs put price P vertically and quantity Q horizontally. For a straight-line equation $Q = a - bP$, the positive numbers a and b describe the line. Solve for price to read the graphed slope:

$$P = \frac{a}{b} - \frac{1}{b} Q.$$

Thus a is the quantity intercept, a/b is the price intercept, and the *graphed* slope is $-1/b$, not $-b$. Use the nonnegative part of the relationship; predicted negative purchases mean zero demand in this model.

For example, $Q = 12 - 2P$ becomes $P = 6 - \frac{1}{2}Q$: the graphed slope is $-\frac{1}{2}$. If buyers now want three more units *at every price*, the new equation is $Q = 15 - 2P$. Add three to quantity, because the change is three units, not three dollars.

Market demand: add each buyer's quantity at the *same price*. If two buyers want two and three cups at \$2 each, market quantity is five cups at \$2. The prices are not added.

Where to revisit the material. Utility and budgets: slides 41–68; worksheet Q5. Equations and shifts: worksheet Q6–7.

Market demand: slides 70–75; textbook Section 2.3. Textbook references use Stevenson and Wolfers, *Principles of Microeconomics*, 3rd ed. Slide numbers count PDF pages.

4 The Economics of Telling Jakob He Is Doing Something Wrong

Suppose section moves too quickly, a graph needs a clearer explanation, or a particular approach really helps you learn. Telling me takes time and may feel awkward, but it can make your remaining sections more useful. This is an application of the same economic reasoning used to understand buying decisions: compare the relevant benefits and costs with your next-best alternative.

4.1 The student's side: is speaking up worthwhile?

The comparison is giving feedback *versus saying nothing*. The benefit depends on whether I understand your suggestion, can act on it, and make a change that helps. The costs can include time, discomfort, and concern about how criticism will be received. In words,

$$\begin{aligned} \text{Expected net benefit of feedback} &= \text{expected benefit from better future sections} \\ &\quad - \text{time and other relevant costs.} \end{aligned}$$

A short, specific comment reduces the time needed and makes a useful response more likely. *Expected* benefit allows for uncertainty: a helpful change is possible, not guaranteed. For instance, “I lose track when we move from the equation to the graph” tells me more than “graphs are confusing”. Positive feedback is informative too: it helps me preserve what works.

4.2 How much feedback is worth giving?

Giving feedback is also a *how much?* decision. A brief comment can identify the main problem; adding one concrete example may make it much easier to act on. Writing several more paragraphs takes additional time and may add little useful information. Compare the benefit of the *next detail* with the time it takes to explain it. You do not need to prepare a complete solution before telling me where you got lost.

This is marginal reasoning: the value of the first helpful comment does not mean that every additional comment is equally valuable. The same distinction explains why enjoying your first cup of coffee does not mean you want an unlimited number of cups.

4.3 The rules and my incentives matter

I do not grade your exams or assignments; my grading-related role is recording attendance. **Candid feedback does not change how I record your attendance.** You do not need to agree with me or praise the section to meet its attendance requirements. Knowing this removes an important reason to worry about speaking up, even if the conversation can still feel awkward.

I benefit when you understand economics, when I become a better teacher, and when that work earns good teaching evaluations. Good evaluations are professionally useful to me; **I want to earn them through useful teaching.** Both of us benefit when section helps you learn. Feedback gives me information about which uses of our limited time help you most; I cannot always infer that from a quiet room.

4.4 Why earlier feedback can be more valuable

End-of-semester evaluations are anonymous, and I receive them after the semester. They help me improve future teaching. Feedback during the semester can also help *you*: an improvement made early benefits more remaining meetings. Waiting has an opportunity cost when a helpful change could have been made sooner. This is interdependence through time: today's choice affects the quality of your later sections.

What this means in practice. Tell me what is unclear, what moves too quickly, what needs less review, and what is especially helpful. Speak with me after section or email jrjuergens@wisc.edu; these channels are not anonymous. I will listen seriously, while balancing different students' needs and the course material. I cannot adopt every suggestion, but I would rather hear in September about something I can improve than learn about it in December.