



Teaching Economics with Breaking Bad

This paper builds on the existing literature, to expand the stock of “chalk-and-talk” alternatives and reduce the cost of implementing such alternatives. Specifically, the paper proposes three lesson plans that are based on a series of *Breaking Bad* scenes identified in Duncan, Muchiri and Paraschiv (2020) and featured as part of the associated online companion, *BreakingBadEcon.com*. The lesson plans rely on the economic content within the scenes to introduce and emphasize a notable array of microeconomic concepts while also facilitating the assessment of concept comprehension and student learning.

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1. Introduction

Breaking Bad is the AMC hit series that ran from 2008 to 2013. The show centers on a high school chemistry teacher's battle with cancer and his decision to "break bad" by producing a highly pure form of methamphetamine to support his family financially. The show provides a wide variety of microeconomic concepts, specifically foundational material and production-related content. Along with numerous awards during its time on television, students have previously ranked the show as one of their favorites, even after it officially ended (Al-Bahrani, Holder, Patel, & Sheridan, 2016).

Support for using media in the classroom has grown over the past decade with an increased emphasis on integrating technology broadly in the classroom (Hoyt & McGoldrick, 2019). The growth in resources has been large enough that some researchers have now turned their attention to cataloging the variety of techniques that have been published (Picault, 2019) or cataloging the journals dedicated to publishing research on economic education (Asarta & Mixon Jr., 2019). While 'chalk and talk' reigns as the dominant teaching style within the discipline (Watts & Schaur, 2011; Asarta, Chambers, & Harter, 2020), other disciplines have embraced learning science methods and active learning techniques to enhance their lectures (Sax, Astin, Korn, & Gilmartin, 1999). However, the cost/benefit ratio of venturing beyond "chalk and talk" remains large and the use of alternative teaching practices is still the exception as opposed to the norm (Goffe & Kauper, 2014). The present work is designed to reduce that cost/benefit ratio and allow instructors an opportunity to introduce a small component of active learning into their classroom.

The *New York Times* (2019) lists *Breaking Bad* as one of the best television dramas since the airing of *The Sopranos* and emphasizes it as a "must-see" show within its list of 50 Best TV Shows on Netflix for 2020. Even though the show is almost a decade old, there are reasons to believe that the continuation of the prequel series *Better Call Saul* and the release of the sequel film *El Camino: A Breaking Bad Movie* may lead to a resurgence in the interest for the *Breaking Bad* series. In addition, *Better Call Saul* and *Breaking Bad* saw an average audience of 2 and 2.26 million viewers across seasons two through five, respectively¹ and the prequel series is also featured on *New York Times*' 50 Best TV Shows on Netflix for 2020. *El Camino: A Breaking Bad Movie* that was released in October 2019 on Netflix, was watched by over 25 million households in its first week (Gajanan, 2019). According to the Internet Movie Database, the two series and the film received their highest ratings from individuals under 18 and between 18 and 29 years of age.

One perk of using familiar/popular media is that it can reduce the cognitive load placed on students. If instructors are not cognizant of this burden, students may not learn at all. Scaffolding, where faculty build on existing knowledge, allows instructors to integrate key concepts into students' already established frameworks (van de Pol, Volman, & Beishuizen, 2010). With this in mind, we suggest using clips from *Breaking Bad* that the authors have cataloged and made available online at BreakingBadEcon.com. Having clips available online also provides students the opportunity to review the clips while reviewing their notes. We have designed the lesson plans below such that students and instructors don't need to be intimately familiar with the show.²

¹Viewership figures for *Better Call Saul* and the fifth season of *Breaking Bad* are provided by Nielsen and were retrieved via <https://tvseriesfinale.com>. Similar figures for seasons two through four of *Breaking Bad* were retrieved from <https://www.esquire.com/entertainment/tv/a15063971/breaking-bad-cast-interview/>.

²For instructors or students interested in reviewing the series' backstory, the authors recommend visiting IMDb (<https://www.imdb.com/title/tt0903747/>) or the *Breaking Bad* Fandom Wiki page (https://breakingbad.fandom.com/wiki/Breaking_Bad_Wiki)

Teaching with television clips is not unique to *Breaking Bad*. A wide range of television shows has been analyzed for economic content, including *The Big Bang Theory* (Tierney, Mateer, Geerling, Wooten, & Smith, 2016; Geerling, Mateer, Smith, Tierney, & Wooten, 2018), *Parks and Recreation* (Wooten & Staub, 2019), *Modern Family* (Wooten, Staub, & Reilly, 2020), *Seinfeld* (Ghent, Grant, & Lesica, 2011), and *Shark Tank* (Patel, Al-Bahrani, Acchiardo, & Sheridan, 2015). Scenes from a variety of television shows and films are also available on the Economics Media Library (Wooten, 2018) and Dirk’s Media Library (Mateer, 2012).

The following lesson plans cover topics frequently taught in a principles of microeconomics course and build on students’ already existing knowledge of *Breaking Bad*. Table 1 highlights a brief overview of each lesson, the unit of study for the lesson to be applied, and a set of vocabulary covered in the lesson.

Table 1: Overview of lessons provided

| Lesson | Title | CEE Voluntary National Standards | College Board AP Micro Unit | Vocabulary |
|---------------|--|---|------------------------------------|--|
| 1 | Absolute and Comparative Advantage | Decision Making Specialization | Basic Economic Concepts | Absolute advantage, comparative advantage, opportunity cost, production possibilities frontier |
| 2 | Substitute Inputs, Technology, and Market Adjustment Possesses | Market and Prices, Role of Prices, and Competition and Market Structure | Supply and Demand | Input, output, supply curve, demand curve, market equilibrium, shortage, substitutes in production, technology |
| 3 | Market Structure Characteristics | Competition and Market Structure | Imperfect Competition | Barriers to entry, elasticity of demand, market power, monopoly, monopolistic competition, oligopoly, perfect competition, product differentiation |

Given the nature of the show, we would be remiss to not mention that *Breaking Bad* contains subject matter not suitable for all ages. While we would not advocate for the use of *Breaking Bad* in an elementary classroom, the clips we have selected are appropriate for a variety of classrooms, despite the show’s overall adult themes. The show was rated TV-MA for violence, drug content, language, and sexuality. Some of the topics in the series are controversial and include death, cancer, family dysfunction, and drug addiction. With that in mind, the authors recommend instructors check with appropriate administrators if they feel their department may not be in favor of using clips from a show with those particular themes.

All of the lesson plans below rely on clips that include activity in illegal markets. This alone could justify exclusion by some faculty who are uncomfortable exploring those topics in their classrooms, particularly given institutional politics. With that in mind, economic activity extends beyond legal exchange, and recognizing that these principles apply broadly can highlight the role of economics in our everyday lives, even when that life is hidden. Some faculty may find that this allows them to address social issues from an academic standpoint rather than ignoring their existence. By weaving discussion between the clips, instructors can

increase engagement and discussion by creating educational cliffhangers (Wooten, 2020).

2. Online Resources & Accompanying Lesson Plans

The Breaking Bad Econ website (www.BreakingBadEcon.com) is a project that complements other websites devoted to analyzing economics content in popular television shows. The website was designed to provide instructors with clips, explanations, and additional teaching guides based on the work of Duncan, Muchiri, and Paraschiv (2020). The site has over 85 clips from the series related to a wide range of topics covered in both principles and intermediate economics courses. The topics covered tend to lean toward principles-level material but some scenes have enough depth that makes them suitable for illustrating costs and production related concepts in intermediate microeconomics courses. The website also provides a set of teaching guides that demonstrate how clips can be used in the classroom as assessments. Each clip hosted on the site has a description and is tagged with various terms for cross-referencing. A search feature allows instructors to identify other clips they may find useful.

Understanding that some instructors are assisted by fully developed lesson plans, this paper fills a gap by providing three well-developed lesson plans that instructors can use in their classroom. The target audience for each lesson plan is specific to high school economics courses, particularly those taught at the senior-level, and principles-level undergraduate microeconomics courses. Each lesson includes the associated standard from the National Council for Economic Education's Voluntary National Content Standards in Economics (2010) and the content area from College Board's Microeconomics content guide (College Board, 2020).

3. Lesson 1: Absolute and Comparative Advantage

Standards

- CEE Voluntary National Standards in Economics
- Content Standard 2: Decision Making
- Content Standard 6: Specialization

College Board Advanced Placement Topic

- Microeconomics Unit 1: Basic Economic Concepts
- Topic 1.3: Production Possibilities Curve
- Topic 1.4: Comparative Advantage and Trade

Unit

- Gains from Trade

Vocabulary

- **Absolute Advantage:** Given the same (production) factor endowments (e.g. time), the agent who can produce more of the good/service/commodity has an absolute advantage in that product.
- **Comparative Advantage:** An agent has a comparative advantage in production when their relative opportunity cost of producing the good/service/commodity is less than that of the other agent.
- **Opportunity Cost:** This is the next best option the person is giving up. In the

context of a production possibilities frontier, this is how much of the other product the agent is giving up by producing one more unit of the chosen product.

- *Production Possibility Frontier (PPF)*: A model describing the possible production choices given two production outputs and some resource constraint. In this lesson, the resource constraint is time itself.

Essential Question

How should production specialization patterns be determined?

Learning Objectives

- Define opportunity cost
- Determine comparative advantage using opportunity cost
- Compare the differences between absolute and comparative advantage
- Draw a production possibilities frontier
- Determine comparative advantage and absolute advantage using PPFs

Warm-Up/ Introduction

Start by showing the video clip [Let's Make a Deal](#). The clip is available on BreakingBadEcon.com and features Walter tracking down his former student, Jesse, with the intention of partnering with him in the production of methamphetamine. Walter makes his intentions obvious when he informs Jesse that the Drug Enforcement Agency (DEA) apprehended Jesse's former business partner. Walter adds, "But you know the business and I know the chemistry. I'm thinking ... maybe you and I could partner up." Follow the clip by mentioning that Jesse has been involved in cooking and distributing his signature chili powder-flavored methamphetamine long before he reconnected with Walter. Although he operated a small-scale production and distribution business, Jesse knows the intricacies of the trade. Conversely, Walter is an over-qualified, high-school chemistry teacher who is a novice in terms of selling/distributing methamphetamine. However, he has an extensive background in chemistry and is an expert in crystallography, the field on which the production of methamphetamine rests.

Next, ask students how methamphetamine cooking/production and selling/distribution tasks ought to be divided. This specialization allows them to make the best use of their resources (i.e., time, human capital in the form of information, and skills). In doing so, Walter and Jesse can take advantage of the differences in the human capital stock they are endowed with. Doing otherwise implies a significant learning (economic) cost that translates into a significant amount of resource (e.g., time) expenditure. Finally, ask students to provide examples of a similar division of labor in their own lives.

Guided Practice

Ask students to recall the video clip [Let's Make a Deal](#) from BreakingBadEcon.com once more. If needed, show the video clip again to reinforce the arrangement Jesse and Walter discuss. After showing the clip, ask students to work in groups to answer the following questions:

- 1) Who has the absolute advantage in the production of methamphetamine? What about the distribution of methamphetamine?
Answer: Walter has the absolute advantage at producing methamphetamine given his extensive experience in chemistry whereas Jesse has the absolute advantage

at distributing methamphetamine. After all, Jesse was previously involved in the distribution of methamphetamine and has an already established network of distributors and customers.

2) Who has the comparative advantage at producing methamphetamine? What about the distribution of methamphetamine?

Answer: The time it would take Walter to distribute the same quantity of methamphetamine as Jesse implies sacrificing a relatively large amount of production. In other words, Walter's opportunity cost of production is lower than Jesse's. Hence, Walter has a comparative advantage at producing methamphetamine. Similar argument can be made for Jesse to emphasize his comparative advantage at distributing methamphetamine.

3) Based on the concept of comparative advantage, how should Walter and Jesse divide the production and distribution tasks among themselves?

Answer: Walter should "cook" (i.e., produce) while Jesse should distribute the methamphetamine. Walter's opportunity cost of distribution is time he could spend cooking and thus the relatively large amount of methamphetamine he can produce instead. Jesse's opportunity cost of distributing methamphetamine is lower than Walter's. The theory of comparative advantage supports the setup of Walter cooking while Jesse distributes, even if Walter is potentially more productive at both.

4) Now, let us assume that Walter holds the absolute advantage at producing and distributing methamphetamine. Should he perform both tasks?

Answer: No. Even if Walter is "better" (i.e., has absolute advantage) at both tasks (i.e., producing and distributing), he must be relatively worse at something. Essentially, even when one does command absolute advantage in both tasks, they must have a comparative advantage in one of the two tasks. The theory of comparative advantage holds that both parties can benefit (produce and distribute more) when they specialize in tasks they have a comparative advantage in.

5) Have students engage in a think-pair-share activity to generate a brief argument (i.e., five sentences or less) about why comparative advantage, as opposed to absolute advantage, should be considered when determining the pattern of specialization.

Answer: The answer lies with the opportunity cost, which should not be overlooked when determining the cost of pursuing an action. If Walter can spend his day producing and selling/distributing methamphetamine, he is giving up cooking/producing some methamphetamine; in fact, and since Walter's human capital is geared towards the production of methamphetamine not towards selling/distributing it, he gives up cooking/producing a significant amount of it. Based on the same logic, a similar argument can be made for Jesse. Together, these arguments serve to emphasize that the pattern of specialization ought to be dictated by the lowest (opportunity) cost/comparative advantage.

Conclusion/Assessment

In class, distribute (or view on screen) the following hypothetical production schedule for Walter and Jesse. Have students answer the questions in pairs or individually that follow using the information in the table below. The following table gives points along each person's production possibility frontiers.

| Production Possibility Frontier Points | | | |
|--|------------|--------------|------------|
| Walter | | Jesse | |
| Distribution | Production | Distribution | Production |
| 0 | 16 | 0 | 8 |
| 3 | 12 | 2 | 6 |
| 6 | 8 | 4 | 4 |
| 9 | 4 | 6 | 2 |
| 12 | 0 | 8 | 0 |

1) Who has the absolute advantage at distributing methamphetamine?
Answer: Given the table above, Walter has the absolute advantage at distributing methamphetamine. When the two are only engaging in distributing, Walter can distribute 12 units while Jesse can only distribute 8.

2) Who has an absolute advantage at producing methamphetamine?
Answer: Walter has the absolute advantage at producing methamphetamine. When the two are only engaging in producing, Walter can produce 16 units while Jesse can only produce 10.

3) Who has comparative advantage at distributing methamphetamine?
Answer: Based on the production schedule, every time Walter distributes an additional 3 units of methamphetamine, his ability to produce the drug decreases by 4 units. Therefore, distributing 1 unit of methamphetamine implies giving up the production of 1.33 units of the drug. Every time Jesse distributes 2 units of methamphetamine, he foregoes producing 2 units of the drug. Therefore, producing 1 unit of methamphetamine implies giving up the production of 1 unit of the drug. Jesse has comparative advantage at distributing methamphetamine because distributing 1 unit of the drug implies giving up the production of 1 unit while Walter must give up the production of 1.33 units.

4) Who has a comparative advantage at producing methamphetamine?
Answer: Walter has comparative advantage at producing methamphetamine because producing 1 unit of the drug implies giving up the distribution of 0.75 units while Jesse must give up the distribution of 1 unit.

5) Who should specialize in producing methamphetamine?
 Who should specialize in distributing methamphetamine?
Answer: Walter should specialize in production and Jesse should specialize in distribution because that is where their comparative advantages lie.

6) Ask students to draw Walter's and Jesse's production possibility frontiers (PPFs) within the same system of axes (with the horizontal axis denoting production) and follow up by asking whether they can spot any links between the graphs and the answers to the previous five questions above.
Answer: Walter's PPF is flatter than Jesse's (with respect to the axis denoting production), which indicates a lower slope and thereby a lower opportunity cost of producing

methamphetamine. Walter's PPF is steeper than Jesse's (with respect to the axis denoting distribution), which indicates a lower slope and thereby a lower opportunity cost of distributing methamphetamine. Jointly and by specializing, Walter and Jesse can produce and distribute 16 and 10 units of methamphetamine, respectively. Not specializing, yields production/distribution combinations that are inferior.

7) Why would the above pattern of specialization lead to gains for both Walter and Jesse?
Answer: Jointly and by specializing, Walter and Jesse can produce and distribute 16 and 10 units of methamphetamine, respectively. Not specializing, leads to joint production/distribution combinations that are inferior (i.e., on PPFs closer to the origin).

4. Lesson 2: Substitute Inputs, Technology, & Market Adjustment Processes

Standards

CEE Voluntary National Standards in Economics
Standard 7: Markets and Prices
Standard 8: Role of Prices
Standard 9: Competition and Market Structure

College Board Advanced Placement Topic

Microeconomics Unit 2: Supply and Demand
Topic 2.2: Supply
Topic 2.6: Market Equilibrium and Consumer and Producer Surplus
Topic 2.7: Market Disequilibrium and Changes in Equilibrium

Unit

Supply and Demand; Comparative Statics

Vocabulary

Input: Items used in the production process to produce an output.

Output: A product or service that a firm can sell to consumers.

Supply Curve: Relationship between the quantity of goods supplied and their price, holding other factors constant.

Demand Curve: Relationship between the quantity of goods demanded and their price, holding other factors constant.

Market Equilibrium: A point where quantity demanded by consumers exactly equals the quantity supplied by producers.

Shortage: A situation in which the quantity demanded of a good or service is larger than the quantity supplied that particular item because the price of that item is below equilibrium.

Substitutes in Production: Inputs that can be used interchangeably in the production process to generate outputs.

Technology: Process applied in the goods production processes.

Essential Question

How do technology and technological shifts affect production decisions and market outcomes?

Learning Goals

- Develop a deeper understanding of how technological shifts and the availability/lack of substitute inputs affect production decisions and the supply side of the market.
- Develop a deeper understanding of the inner workings of the supply/demand model through comparative statics exercises.
- Gain a deeper understanding about what exactly amounts to “technology.”

Warm-Up/ Introduction

Start by showing the video clip [Biker Meth](#). The clip is available on BreakingBadEcon.com and features DEA agents Schrader and Gomez analyzing a video recording of a robbery that occurred at a local warehouse. The robbery was prompted by a shortage of pseudoephedrine, a key input in the standard production of methamphetamine that incentivizes Walter and Jesse to change their methamphetamine-production process (i.e., recipe). After showing the clip, students should work in groups and use economic reasoning to connect the shortage of pseudoephedrine and the change in the methamphetamine production process. Their reasoning should center on the increase in the opportunity cost of producing methamphetamine with the older formula.

Guided Instruction

Ask the students to recall the clip and prompt them to work in groups to analyze the following questions:

1) Using the standard supply and demand model, depict a “short supply” in the market for pseudo[ephedrine].

Answer: The students should start with the standard supply and demand diagram and proceed by shifting the supply curve to the left thereby indicating a decline in the availability of pseudoephedrine at all price levels.

2) Describe how the market for pseudo[ephedrine] adjusts to the new equilibrium.

Answer: The students should start by noting that, all else equal, the decreased supply of pseudoephedrine generates an initial shortage. In turn, the price of pseudoephedrine increases thereby triggering supply- and demand-side adjustments. Specifically, and all else constant, the quantity supplied increases whereas the quantity demanded decreases. Once the market quantity supplied and quantity demanded equal each other, the price stops increasing. The new equilibrium in the pseudoephedrine market is characterized by a higher price and a lower quantity (supplied and demanded).

3) Using a supply/demand diagram depict the effect of the “short supply” of pseudo[ephedrine] on the market for methamphetamine. It is important to keep in mind that pseudo[ephedrine] is a key ingredient in the methamphetamine production process.

Answer: The students should start with the standard supply/demand diagram and proceed by shifting the supply curve to the left thereby indicating a decline in the availability of methamphetamine at all price levels.

4) Describe how the market methamphetamine adjusts to the new equilibrium.

Answer: The students should start by noting that, all else constant, the decline in the supply of methamphetamine generates a shortage. In turn, the price of methamphetamine increases thereby triggering supply- and demand-side

adjustments. Specifically, and all else constant, the quantity supplied increases whereas the quantity demanded decreases. Once the market quantity supplied and quantity demanded equal each other, the price stops rising. The new equilibrium in the methamphetamine market is characterized by a higher price and a lower quantity (supplied and demanded).

5) Absent the change in formula, why would Walter and Jesse need to charge a higher price for their product?

Answer: Walter and Jesse need to charge a higher price for their product due to a higher opportunity cost of producing methamphetamine that is ultimately brought about by the shortage of key production input.

Assessment

Ask students to recall the video clip [Biker Meth](#) or show it again if time has elapsed since the first showing. Follow that clip by showing the clip [Pseudo Substitute](#). This clip is also available on BreakingBadEcon.com and features Walter going over a different approach to producing methamphetamine; one that does not rely on pseudoephedrine. Instead, the new production process relies on methylamine and a different way of yielding methamphetamine (i.e., different technology). Next, prompt the students to work in groups to answer the following:

1) Can the “new” formula be regarded as technology? Why?

Answer: Yes! The “new” formula represents one way of turning various inputs (i.e., those on the list Walter hands to Jesse) into methamphetamine.

2) Using the standard supply and demand model depicts the “short supply” in the market for pseudo[ephedrine] while the “new” formula (i.e., new technology) is available. **Answer: The students should start with the standard supply/demand diagram and proceed by shifting the supply curve to the left thereby indicating a decline in the availability of pseudoephedrine at all price levels. Since another production process that involves a different recipe and does not require pseudoephedrine as an input can be deployed, students may also depict a decline in demand for pseudoephedrine.**

3) Describe how the market for pseudo[ephedrine] adjusts to the new equilibrium while the “new” formula (i.e., new technology) is available.

Answer: The students should start by noting that, all else constant, the “short supply” of pseudoephedrine amounts to a shortage. In turn, the price of pseudoephedrine increases thereby triggering supply- and demand-side adjustments. Specifically, and all else constant, the quantity supplied increases whereas the quantity demanded decreases. Once the market quantity supplied and quantity demanded equal each other, the price stops rising. The new equilibrium in the pseudoephedrine market is characterized by a higher price and a lower quantity. The new technology advances a more efficient methamphetamine production and lowers its production cost. As a result, the use of pseudoephedrine to produce methamphetamine is now relatively more expensive. All else equal, the demand for pseudoephedrine decreases, which results in a decrease in the price of pseudoephedrine.

4) Using a supply/demand diagram depicts the effect of the “short supply” of pseudo[ephedrine] on the market for methamphetamine. It is important to keep in mind that pseudo[ephedrine] is a key ingredient in the methamphetamine production process. At the same time, note that the “new” formula (i.e., new technology)

allows for the production of methamphetamine without using pseudo[ephedrine].
Answer: There are two supply shifters in this particular market: the increased cost of an input will shift the supply curve to the left while an improvement in production technology shifts the supply curve to the right. The size of these two shifters is unknown, which makes the impact on the market ambiguous. Below we provide a summary of each possible outcome.

Outcome 1: If the decrease in supply is stronger than the increase in supply, the net effect is that the market price will increase and the quantity will decrease.

Outcome 2: If the decrease in supply is weaker than the increase in supply, the net effect is that the market price will decrease and the quantity will increase.

Outcome 3: If the decrease in supply is the same size as the increase in supply, there will be no change in the market price and quantity.

5) Absent the change in formula Walter and Jesse might need to charge a higher price for their methamphetamine. Would this still be the case if the “new” formula (i.e., new technology) is available?

Answer: Not necessarily! All else constant, the new formula allows Walter and Jesse to produce methamphetamine without using pseudoephedrine that is in short supply. Instead, the “new” formula allows them to alter the production process and substitute pseudoephedrine with methylamine.

5. Lesson 3: Market Structure Characteristics

Standards

CEE Voluntary National Standards in Economics
Standard 9: Competition and Market Structure

College Board Advanced Placement Topic

Microeconomics Unit 4: Imperfect Competition
Topic 4.1 Introduction to Imperfectly Competitive Markets

Unit

Market Structures

Vocabulary

Assumptions: Things that are accepted as true to better understand consumer behavior.

Barriers to Entry: The existence of high costs or obstacles that prevent other businesses from entering a market.

Market Power: The ability of a firm to change the price of their product.

Models: A simplified framework used to describe a more complex process.

Monopoly: An imperfect market structure with a single seller offering a unique product.

Monopolistic Competition: An imperfect market structure with many sellers offering differentiated products.

Oligopoly: An imperfect market with a limited number of competitors.

Perfect Competition: A market that involves numerous buyers and sellers of a homogenous good.

Product Differentiation: The process distinguishes a product or service from competitive substitutes.

Essential Question

How do market characteristics differ between the four main market structures?

Learning Goals

- Provide examples of barriers to entry into a market
- Identify and describe characteristics of each market structure
- Understand and compare differences between market structures

Warm-Up/ Introduction

Understanding the limitations of modeling is an important component of teaching market structures because the four markets typically covered in a principles course rely on a relatively narrow set of assumptions. Having students think explicitly about the importance of assumptions with a more familiar example should help open the discussion about the assumptions of each of the four general market structures that are covered in the course. Assumptions are usually covered at the beginning of a course when detailing markets, however, the concept can be revisited at the end of the market structures unit to help inform on why markets are defined as they were.

Show the first 50 seconds of the clip [Chicken and Drugs](#), which starts by providing a commercial for the Los Pollos Hermanos fried chicken franchise. After showing the clip, ask students to identify what characteristics of the brand stood out and see if they can articulate why customers might care about those characteristics. Without realizing it, students are identifying the differentiation that is present in monopolistically competitive markets. If time allows, you could ask students to identify characteristics of other franchises or local restaurants. For example, Wendy's is famous for advertising that their beef is never frozen. Chipotle argues that its products don't contain hormones or pesticides. Most products are differentiated and for understanding the behavior of firms supplying them, we would need a model of competition that takes into account the differentiated nature of goods and services.

After discussing the reasons why a firm would want to differentiate itself from its competitors, consider other markets without product differentiation, like tomatoes or lettuce. While some agricultural producers have formed cooperatives (like milk producers), many farmers sell their products without advertising. Ask students to articulate how the market for fried chicken differs from the market for vegetables. For perfectly competitive markets, we assumed that the products are homogenous. This is done for a variety of reasons, including simplicity of a foundational model, but also to provide examples of markets that are more competitive than others.

Guided Practice

Show the following clips from BreakingBadEcon.com: [No More Chili Powder](#) followed by [Starting a Business](#). In the first clip, Walter describes [to Jesse] the various chemistry equipment

items, which he had illegally appropriated from the laboratory he supervises as part of his duties as a chemistry teacher. All of these items will be used in the methamphetamine production process. Their dialogue morphs into a discussion about how to cook methamphetamine, the production setup, the ingredients, as well as some of the risks involved. In the second clip, the two discuss a possible production location and conclude that the best way to go about this is to purchase a recreational vehicle.

The video clip provides a context for discussing the role of assumptions that underlie the characteristics of market structures, particularly those with barriers to entry. Under perfect competition and monopolistic competition, firms are expected to easily enter and exit the market with no major barriers preventing their decisions. Based on the amount of knowledge and equipment necessary to start their business, it's unlikely that Walter and Jesse's operation would be considered competitive.

This instruction is targeted for the end of the market structures unit to help students distinguish between the characteristics of the main four markets and how changing the assumptions of a competitive market lead to different market structures. Have students answer the following questions (answers are in bold):

- 1) What are the four primary market structures covered in the course?
Answer: Perfect competition, oligopolies, and monopolistic monopolies
- 2) Which market structures have only a few firms competing with each other?
Answer: Oligopolies and monopolies
- 3) Which market structures have few barriers to entry?
Answer: Perfect competition and monopolistic competition
- 4) Which market structures can earn a profit in the short run?
Answer: Perfect competition, oligopolies, and monopolistic monopolies
- 5) Which market structures break-even in the long run?
Answer: Perfect competition and monopolistic competition

Because Walter and Jesse are selling a product that is differentiated from the others by its high level of purity/quality, they could be operating in either a monopolistically competitive market or an oligopoly. One of the main differences between the two market structures is that monopolistically competitive markets involve barriers to entry that are not as significant as those featured by oligopoly markets (e.g., moderate versus substantial economies of scale dictated by the fixed cost of market entry and/or production). However, firms operating in both monopolistically competitive and oligopolistic markets use product differentiation to distinguish their products from those of their competitors.

Using the clips above, task students with determining whether Walter and Jesse are operating in a monopolistically competitive market or an oligopoly. In doing so, it is important that students focus on barriers to entry, product differentiation, and pricing power. Arguments could be made for either market structure, but it's beneficial for students to determine on their own that their ability to identify the market relies on assumptions they make about the number of other firms in the market, whether the barriers are truly a burden to entry, and how much market power Walter and Jesse possess. Students will likely discover that firms in this particular

market are rather heterogeneous (e.g., Walter and Jesse's enterprise has a rather large degree of market power in comparison to others, who do not distinguish their product through color and quality).

After students consider the assumptions that might characterize the two markets, the instructor can focus on key barriers that prevent most people from participating in the market: the degree of knowledge necessary to prepare and conduct the production process. Depending on the comfort level of instructors and students, ask the class if anyone in the room even knows how to make methamphetamine. The class is likely to get a serious chuckle out of this. In addition to a general knowledge of the production process, Walter and Jesse need lab safety equipment, an emergency eyewash station, and, of course, a laboratory/recreational vehicle. All of these items represent potential barriers to entry into the market. The presence of the lab equipment and a cook site would represent large upfront fixed costs, which means that sufficient scale would allow the two to produce at a low average cost. This would likely imply that the market is oligopolistic.

This guided practice can be paired with the second half of the clip [Chicken and Drugs](#) that is featured as part of the introduction exercise above. The clip shows Walter and Jesse producing a differentiated product (i.e., their signature blue meth) at a scale that is likely profitable given the investment by Gus Fring. Depending on how many competitors are assumed to be in the market, Walter and Jesse could be operating with few close competitors in the Albuquerque area which would make them oligopolistic. If, however, they are operating in a market that encompasses the entire Southwest United States, their enterprise may appear to be more monopolistically competitive. Regardless of the market structure, they are using product differentiation to set themselves apart from competition. If this increase in investment in production facilities allows Walter and Jesse to produce at a substantial scale, they may be able to lower their average costs by producing in large quantities.

Have students work in groups to complete the following matrix on market characteristics. Add or remove rows as necessary for your class coverage. This assignment could also be adapted as a matrix puzzle (Walstad, 2018).

| | Market Type | | | |
|------------------------|---------------------|--------------------------|---------------------------|----------|
| Characteristics | Perfect Competition | Monopolistic Competition | Oligopolistic Competition | Monopoly |
| # of Firms | | | | |
| Types of Products | | | | |
| Barriers to Entry | | | | |
| Pricing Power of Firm | | | | |
| Size of Firm in Market | | | | |
| S/R Profitability | | | | |
| L/R Profitability | | | | |

Suggested answers:

| | Market Type | | | |
|------------------------|---------------------------|---------------------------|-----------------------------|---------------|
| Characteristics | Perfect Competition | Monopolistic Competition | Oligopolistic Competition | Monopoly |
| # of Firms | Many | Many | Few | One |
| Types of Products | Identical | Differentiated | Identical or differentiated | Unique |
| Barriers to Entry | None | Very few to none | High | Entry blocked |
| Pricing Power of Firm | None | Some | Lots | All |
| Size of Firm in Market | Small | Small | Large | 100% |
| S/R Profitability | Profits & losses possible | Profits & losses possible | Profitable | Profitable |
| L/R Profitability | Zero profit | Zero profit | Profitable | Profitable |

6. Closure/Assessment

Have students complete this three-question quiz at the end of class or as part of a homework assignment. The questions here take a summative approach and ask students to

review material from across all of the market structures.

- 1) Why should Walter care about how his product performs? Why should product quality matter, especially when traded in a black market where customers may not care about the quality of the product?
 - a) Product characteristics determine how responsive customers are to price changes when buying the product.
 - b) Product characteristics determine the markup above the marginal cost that a firm can charge.
 - c) Product characteristics, indirectly, determine a firm's market power.
 - d) Two of the above are true.
 - e) **All of the above is true.**

- 2) Why should Jesse care about whether they use chili powder for cooking his signature methamphetamine?
 - a) The use of chili powder differentiates Jesse's methamphetamine from other varieties.
 - b) The use of chili powder may improve Jesse's market power.
 - c) The use of chili powder may allow Jesse to charge a higher markup over the marginal cost.
 - d) **All of the above is true.**

- 3) How do product characteristics shape the slope of the demand curve?
 - a) The more unique/differentiated a product is, the steeper the demand curve.
 - b) The more substitutes a product has, the flatter the demand curve.
 - c) The broader the classification of a good, the flatter the demand curve.
 - d) **Two of the above are true (A & B).**
 - e) All of the above is true.

7. Conclusion

The lesson plans included here can be adopted by instructors to increase engagement with their students in the classroom. We built each lesson plan with the knowledge base of the students in mind to maximize the potential gains in learning from using a television show already familiar to many students. How educators choose to implement these clips could vary dramatically. For consistency, we have recommended that the above lesson plans ask students to work in groups, the same activities could be completed as more formal Think-Pair-Share activities (Maier & Keenan, 1994) in smaller classrooms or larger classrooms with the use of classroom response systems like clickers (Calhoun & Mateer, 2011) or Kahoot! games (Wooten, Acchiardo, & Mateer, 2020). We encourage instructors to try one or more of the provided plans and to submit additional plans to be featured on the website.

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