

TEACHING ECONOMICS WITH SCENES FROM *MONEYBALL*

Jadrian Wooten¹ and Dustin R. White²

Abstract

The award-winning film *Moneyball* is considered one of economic educators' top movies for teaching economics, but resources to teach with the film are scant. We summarize eight key scenes in the movie that are closely tied with economics topics, many of which can be used in a principles-level course. For each scene we provide the corresponding topic, a brief summary, and a follow-up question to ask students.

Key Words: economics education, teaching methods, undergraduate economics, *Moneyball*

JEL codes: A21, A22, Z29

Introduction

Michael Lewis' (2004) publication of *Moneyball* tells the true story of the Oakland A's process of assembling a winning team with a limited budget. From the premise alone, the concept neatly describes how many economic educators begin their course. In Mankiw's (2020) *Principles of Economics* textbook, he defines economics as "the study of how society manages its scarce resources." Billy Beane, the Oakland A's General Manager at the time, was tasked with making decisions about player personnel given one of the lowest payrolls in Major League Baseball (Associated Press 2003).

Moneyball would eventually result in a feature-film starring Brad Pitt as Billy Beane and result in educators being able to integrate clips into their classroom. *The Simpsons* would dedicate an episode to the *Moneyball* concept as Lisa coaches Bart's little league team using sabermetrics. In *Brooklyn 99*, Captain Holt shares his love of the film *Moneyball* because of how beautifully the statistical analysis is portrayed.³ The movie has also found its way to the heart of economics educators and is considered one of the best movies for teaching economics (Mateer, O'Roark, and Holder 2016).

Given time constraints in the classroom, it is unlikely that educators would be able to show the entire movie to their students. We have identified eight key scenes in the movie that can be used to teach various concepts in the principles curriculum. By isolating these scenes, instructors can more easily integrate the clips into their current lesson plans. The clips are available for streaming online, but educators can create an account with Critical Commons if they are interested in downloading the scenes. For each clip, we provide a summary of the scene, its application to the curriculum, and a follow-up question that can be assigned to students.

¹ Associate Teaching Professor of Economics, Department of Economics, The Pennsylvania State University, 303 Kern Building, University Park, PA 16802

² Assistant Professor of Economics, College of Business Administration, University of Nebraska at Omaha, 300 Mammel Hall, 6708 Pine Street, Omaha, NE 68182

³ Both of these scenes can be found on Economics Media Library (Wooten 2018).

Literature Review

The number of educators using media in the classroom has doubled over the past decade, likely due in large part to instructor comfort with PowerPoint and other computer-generated presentation technology. Traditional lectures are still the predominant form of teaching, but educators have increased the variety of activities they assign to students (Asarta, Chambers, and Harter 2020). Goffe and Kauper (2014) find that lecture remains prevalent among educators because it's cost effective in the sense that it takes time to develop resources for class. The response from economics educators has been an increase in the number of resources that can be used to teach economics, effectively lowering the cost of implementation (Wooten et al. 2020).

One challenge of teaching principles courses is that students may believe the material is irrelevant or uninteresting. Adjusting a student's mindset could involve highlighting the importance of the course for students' majors or career ambitions, but using content and material relevant to their interests could be beneficial as well (Chew and Cerbin 2020). Baseball and *Moneyball* have already been demonstrated as effective topics for teaching courses in statistics (Wang 2007) and human resource management (McHugh 2009), or as the basis for a project on marginal revenue product (Wooten and White 2018).

References to sports during lectures are not uncommon among economics educators, occurring just as frequently as references to diversity, inclusion, and gender issues, and marginally more often than references to literature, drama, or music (Asarta, Chambers, and Harter 2020). Given the global nature of the game, interest in baseball will likely be high among undergraduates from the United States, Korea, Japan, and Central America, and so referencing *Moneyball* as a tool for economic analysis may enhance student learning by addressing an area of student interest.

Media use as a pedagogical tool has received growing attention following prominent work of cognitive scientists. Small changes to the way material is presented or how assessments are framed can have large impacts on student learning (Lang 2016). The most common integration of media focuses on classroom response systems (Calhoun and Mateer 2011; Wooten, Acchiardo, and Mateer 2020) or cooperative learning techniques like think-pair-share (Buckles, Hoyt, and Imazeki 2011). For out-of-class assessment, students could be assigned questions related to the readings and educators could use online programs to randomly assign such questions (Wooten and Smith 2018).

The *Moneyball* Story⁴

In a sport dominated by big spending teams like the New York Yankees, Boston Red Sox, and Los Angeles Dodgers, the Oakland A's were able to identify skilled players at low salaries and compete with higher paying teams. The success of the Oakland A's was credited to General Manager Billy Beane and his assistant, Paul DePodesta (known as Peter Brand in the film). Beane was a highly regarded player out of high school but never met the expectations of major league scouts. A first round draft pick by the New York Mets, Beane was touted as a five-tool player by scouts who were employed primarily by professional teams as the initial evaluators of amateur players. After his mediocre playing career, Beane would go on to become General Manager of the Oakland A's. Beane and DePodesta's strategy of identifying players relied heavily on statistical performance indicators that were discovered to be highly correlated with team success, despite the advice of team scouts and managers.

⁴ Stefani and Albert (2011) provide a brief introduction to *Moneyball* as a film review.

Moneyball Scenes

Each scene identified below includes topic, length, scene summary, and an assessment question that could be asked following the scene.⁵ We have bolded the answer to the assessment question. These questions were designed for use with a classroom response system, but they could be modified to account for other active learning assessment types.

Clip #1: Stanford vs. Major League Baseball

Topic: Opportunity Cost & Tradeoffs

Length: 1 minute and 42 seconds

Summary: Billy Beane was considered one of the best baseball prospects in the country (five-tool guy), but he needed to make an important decision in high school. He was offered a full scholarship to play baseball at Stanford, but the New York Mets were also interested in signing him professionally after graduation. Billy can't do both, and if he picks Major League Baseball, he loses the opportunity to ever play college baseball again. If he signs with Stanford, he risks an injury that could keep him out of Major League Baseball forever.

Follow-up Question: Which of the following statements about opportunity costs are TRUE for the high school version of Billy Beane?

- I. The opportunity cost of signing with the Mets is equal to the sum of every scholarship offers he received to play baseball.
 - II. Billy's opportunity costs with the Mets only measure the direct out of pocket expenditures he'll pay when he starts as a minor league player.
 - III. In order to calculate the opportunity cost of signing with the Mets, we need to know how much value Billy earns from playing baseball at Stanford.
-
- A. I and III only.
 - B. II only.
 - C. III only.**
 - D. None of these statements are true.

Clip #2: Moving On

Topic: Sunk Costs

Length: 1 minute and 57 seconds

Summary: When making decisions, there will often be situations where a lot of time and money have been spent but can't be recovered. In the case of young Billy Beane, professional teams spent a lot of money training and paying Billy, but he just doesn't seem to be productive. An irrational manager would keep Beane around because of all the money they've spent. If things don't go the way you anticipate, it's important to move on if that's the best choice. Decision-makers shouldn't fixate on the past.

Follow-up Question: Which of the following statements about sunk costs is *FALSE*?

- I. The time and money teams have spent helping Billy develop cannot be recovered, no matter what future action is taken.

⁵ All of the scenes are available online at www.MoneyballSimulator.info.

- II. Because the time and money teams have invested in Billy cannot be recovered, they shouldn't be considered when determining whether to re-sign him to the team.
 - III. If the amount of sunk costs are large enough, General Managers should take this into account when making future decisions about Billy.
- A. II only.
 - B. **III only.**
 - C. I and III only.
 - D. II and II only.

Clip #3: Playing First Base

Topic: Comparative Advantage

Length: 3 minutes and 7 seconds

Summary: The A's need to replace some of their star players who they have lost to other teams. They decide to recruit Scott Hatteberg to play first base, but he's only ever played catcher. When they try to explain the situation, Scott seems confused at first because he believes his comparative advantage is in playing catcher. Because he hurt his elbow, he's not as good of a catcher as he was before. Billy Beane believes Scott's comparative advantage is actually in getting on base, and Billy believes that the A's can teach Scott how to play first base.

Follow-up Question: Applying the theory of comparative advantage to the Oakland A's leads to which of the following?

- A. **Increased specialization of players and other factors of production.**
- B. Decreased specialization of players.
- C. A team where everyone can play at every position.
- D. Fewer wins at the end of the season

Clip #4: Epidemic Failure in the Game

Topic: Derived Demand

Length: 2 minutes and 7 seconds

Summary: Firms tend to emphasize the role of hiring players, but this bias is what Peter Brand hopes to overcome. He believes the focus should be on the production of output (runs), not on the input (labor). Derived demand implies that firms demand inputs as a result of demand for the final product. Because teams want to see wins and runs, firms should focus on hiring workers who produce those, not on particular workers themselves.

Follow-up Question: Which of the following quotes from the scene best describes the concept of derived demand?

- A. **Your goal shouldn't be to buy players. Your goal should be to buy wins.**
- B. People who run Major League Baseball teams misjudge their players and mismanage their team.
- C. People who run ball clubs think in terms of buying players.

Clip #5: Identifying Players

Topic: Statistical Discrimination & Labor

Length: 2 minutes and 16 seconds

Summary: Discrimination occurs when people are treated differently despite having the same productivity as others. Statistical discrimination is a special example of discrimination that requires the firm to consider observable characteristics (like having a goofy throw) and assign values to that characteristic. Workers who are different than average are the ones most often harmed from statistical discrimination while firms can be profitable by lowering their costs of hiring.

Follow-up Question: Which of the following most closely demonstrates statistical discrimination among baseball players?

- A. Using performance statistics to judge the average characteristics of a group of players.
- B. Judging one player according to a group to which they belong.**
- C. Using statistics to determine which player to hire.
- D. Trading players due to below average performance.

Clip #6: Managing on a One-Year Contract

Topic: Principal-Agent Problem

Length: 2 minutes and 10 seconds

Summary: The General Manager (Billy Beane) decides which players are on the team, but it's up to the Coach (Art Howe) to set the lineup. Wins and losses are often associated with the coach, even though they don't get to pick the players on the team. The problem for the A's? The General Manager has a different incentive structure than the coach. The coach is working in his own best interest, which doesn't align with the General Manager's plan of using sabermetrics to set lineups.

Follow-up Questions: Which of the following is not a component of the principal-agent problem?

- A. Equilibrium conditions.**
- B. Conflict of interest between principal (GM) and agent (Coach).
- C. Asymmetric information.
- D. Available economic surplus.

Clip #7: I Hate Losing

Topic: Loss Aversion & Prospect Theory

Length: 11 seconds

Summary: Beane is talking with a player in the weight room and expresses how his desire to win is dwarfed by his hatred of losing. He keenly tells his player that there is a difference between the two. This attitude is the mindset of prospect theory and loss aversion. People respond more strongly to losses than they would to an equivalently sized gain.

Follow-up Question: From a loss aversion perspective, it may be more attractive to:

- A. pay less attention to losses.
- B. reduce the frequency of evaluations.**

- C. increase the attractiveness of success.
- D. emphasize more consistency.

Clip #8: We Need More Money

Topic: Constrained Optimization

Length: 2 minutes and 7 seconds

Summary: The A's have lost in the playoff and Billy Beane heads to the owner's office to ask for more money. The A's operate in a small market, so revenues are smaller than they are in places like New York and Boston. The A's owner, though, isn't interested in spending more money on the team and tells Billy that he needs to work within the budget he's been given. Constrained optimization is the mathematical approach of balancing the tradeoff between what people want (like Billy Beane wanting a championship team) and the budget they have to spend on their wants (like the owner limiting spending).

Follow-up Question: To maximize the Beane's utility, he should choose a consumption bundle where:

- A. his indifference curves are equal to each other.
- B. the marginal utility of each player is equal.
- C. the slope of his highest indifference curve is equal to the slope of the budget constraint he's been given.**
- D. he wins a championship, even if it means going over budget.

Concluding Thoughts

Moneyball provides an opportunity for educators to bring economics into the classroom in a way that many students find engaging. These scenes allow instructors to integrate the movie into their lessons and demonstrate how the concepts covered in the textbook are actually used outside of the classroom. By connecting the content with real-life scenarios, instructors may be able to overcome the student mindset that economics isn't relevant. For an educator who is new to using media in the classroom, our hope is that this guide will provide an easy entry into the opportunities that exist with other movies and television shows.

References

- Asarta, C., R. Chambers, and C. Harter. 2020. "Teaching methods in undergraduate introductory economics courses: Results from a sixth national quinquennial survey." *The American Economist*, 66(1): 18-28. <https://doi.org/10.1177/0569434520974658>.
- Associated Press. 2003. "2003 Baseball Payrolls." Retrieved form: <https://www.espn.com/espn/print?id=1583823>/. Accessed March 19, 2021.
- Buckles, S., G. Hoyt and J. Imazeki. 2011. "Making the large-enrollment course interactive and engaging." In G. Hoyt and K. McGoldrick (Eds), *International Handbook on Teaching and Learning Economics* (pp. 118-128). Cheltenham: Edward Elgar Publishing.
- Calhoun, J., and G.D. Mateer. 2011. "Incorporating media and response systems in the economics classroom." In G. Hoyt and K. McGoldrick (Eds), *International Handbook on Teaching and Learning Economics* (pp. 149-159). Cheltenham: Edward Elgar Publishing.
- Chew, S., and W. Cerbin. 2021. "The cognitive challenges of effective teaching." *The Journal of Economic Education*, 52(1): 1-24. <https://doi.org/10.1080/00220485.2020.1845266>

- Goffe, W., and D. Kauper. 2014. "A survey of principles instructors: Why lecture prevails." *The Journal of Economic Education*, 45(4): 360-375.
<https://doi.org/10.1080/00220485.2014.946547>
- Lang, J. 2016. *Small Teaching: Everyday Lessons from the Science of Learning*. Hoboken: John Wiley & Sons.
- Lewis, M. 2004. *Moneyball: The art of winning an unfair game*. New York: WW Norton & Company.
- Mankiw, N. 2020. *Principles of Economics*. Boston: Cengage.
- Mateer, G., B. O’Roark, and K. Holder. 2016. "The 10 greatest films for teaching economics." *The American Economist*, 61(2): 204-216.
<https://doi.org/10.1177%2F0569434516653749>
- McHugh, P. 2009. "'Batter up, student on deck' The utility of *Moneyball* in management education." *Journal of Management Education*, 33(2): 219-238.
<https://doi.org/10.1177%2F1052562908321712>
- Stefani, R., and J. Albert. 2011. "*Moneyball*: Brad Pitt, the statistician and the movie." *Significance*, 8(4): 185-186. <https://doi.org/10.1111/j.1740-9713.2011.00529.x>
- Wang, S. 2007. "Teaching statistical thinking using the baseball hall of fame." *Chance*, 20(1): 25-31. <https://doi.org/10.1080/09332480.2007.10722829>
- Wooten, J. 2018. "Economics media library." *The Journal of Economic Education*, 49(4): 364-365. <https://doi.org/10.1080/00220485.2018.1500962>
- Wooten, J., C. Acchiardo, and G.D. Mateer. 2020. "Economics is a Kahoot!" *The Journal of Economic Education*, 51(3-4): 380. <https://doi.org/10.1080/00220485.2020.1804499>
- Wooten, J., A. Al-Bahrani, K. Holder, and D. Patel. 2021. "The role of relevance in economics education: A survey." *Journal for Economics Educators*, 21(1): 11-34.
- Wooten, J., and B. Smith. 2018. "Create random assignments: A cloud-based tool to help implement alternative teaching materials." *The Journal of Economic Education*, 49(3): 297. <https://doi.org/10.1080/00220485.2018.1464983>
- Wooten, J., and D. White. 2018. "An in-class experiment to teach marginal revenue product Using the baseball labor market and *Moneyball*." *Journal of Economics Teaching*, 3(1): 115-133.