



Economic Lessons from the Musical *Hamilton*

The musical *Hamilton* is the most popular musical in recent history and might be the best single album one could use to teach economic concepts. We explore how the songs in *Hamilton* can be used to teach about opportunity cost, trade-offs, time preferences and time-inconsistent preferences, the Federal Reserve System and central banking, economic freedom, and more. We also provide discussion questions that educators could use to teach concepts presented in *Hamilton*.

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1. Introduction

While it is still the primary way instructors are teaching economics, educators are slowly shifting away from the traditional “chalk-and-talk” method of instructing (Becker & Watts, 1996, 2001; Becker, Becker, & Watts, 2006; Watts & Schaur, 2011). Some economics instructors are using non-traditional methods to teach, including using works of art (Watts & Christopher, 2012; Al-Bahrani, Holder, Patel, & Wooten, 2016), historical novels (Cotti & Johnson, 2012), movies (Mateer, O’Roark, & Holder, 2016; Mateer & Stephenson, 2011), television series (Kuester, Mateer, & Youderian, 2014; Ghent, Grant & Lesica, 2011), and social media (Al-Bahrani & Patel, 2015). By incorporating these alternative methods, educators are attempting to better reach their students.

Yet another way teachers are innovating is by using music in their courses, and many instructors have touted the benefits of this practice (Lawson, Hall, & Mateer, 2008; Krasnozhon, 2013; Tinari & Khandke, 2000; Hall & Lawson, 2008; Holder, Hoffer, Al-Bahrani, & Lindahl, 2015). To this point, economists touting the use of music to teach have illustrated how multiple songs from multiple sources can be used. This paper is different in that we discuss the songs from one specific source: *Hamilton*. The musical *Hamilton*, which is based on Ron Chernow’s autobiography, contains a variety of musical genres, including pop, hip-hop, rhythm and blues, and jazz to showcase the life of Alexander Hamilton. The musical’s use of current music styles has attracted many younger fans – including many college students. Yet it is not solely younger fans who like the show. The wide variety of music styles presented and the focus on American history have made this one of the most popular musicals of all time. In fact, Barack Obama once said: “*Hamilton* is the only thing Dick Cheney and I agree on” (Fabian, 2016).

Hamilton has become what *The Wall Street Journal* describes as “the best and most important Broadway musical of the past decade” (Teachout, 2015). *Hamilton* earned Billboard 200 ranks of #1, #3, #5, and #9 for Cast Albums, Rap Albums, Digital Albums, and Top Album Sales, respectively (Caulfield, 2015). *Hamilton* is only the sixth cast album to reach the Top 20 in the last 50 years (Caulfield, 2015), and it set the record for receiving the most Tony Award nominations (Tony Awards, 2016). It won the Tony Award and Grammy Award for best musical, along with a Pulitzer Prize in Drama – one of only nine musicals in history to win this accolade (Viagas, 2016). *Hamilton*’s popularity has caused a massive spike in ticket prices. In fact, in October 2016, economist Greg Mankiw paid \$2,500 per ticket to see *Hamilton* (Mankiw, 2016).

We describe how *Hamilton* can be used to teach economics by examining the lyrics in several of the songs from the musical. These songs can be used to illustrate trade-offs, opportunity costs, the acquisition of human capital, monetary policy, labor economics, discounting the future, the Federal Reserve and central banking, discrimination, inequality, and more. For all songs discussed in this paper, we also provide some discussion questions that educators could use with their students (see Table 1). While many papers have demonstrated the benefits of using music to teach economics, we know of no other paper that attempts to show how to use a set of songs from a single album or musical.¹ *Hamilton* recounts events that happened during the founding of the United States, and it illustrates economic concepts that are rarely discussed in popular music. Further, the songs are popular with college students (Elliott, 2016). Thus, using *Hamilton* to teach economics could be especially valuable for persuading students who otherwise might not attempt to learn economic concepts (perhaps theatre or music majors) to study, and hopefully major in, economics.

1 That said, there are some books or plays that could be used. For example, new research shows how one could use the Berenstain Bears books (albeit using multiple books) or Shakespeare plays (see Yetter, 2016 and Green, 2002, respectively).

2. Background on Using Music to Teach

Many students are connected to devices that can play music at all times. A recent poll found that over 86 percent of college students have a smartphone (Pearson, 2015) and a Common Sense Media poll in 2015 found that teenagers spend nine hours a day using media (Common Sense Media, 2015). This means that students have almost continuous access to music – which helps make it a useful tool for educators.

Tinari and Khandke (2000) discuss songs that could be used to help teach economics, along with two assignments they piloted. Several other economists in recent years have subsequently written about using music to teach economics, including Hall, Lawson, Mateer, and Rice, 2008; Hall and Lawson, 2008; Lawson et al., 2008; Mateer and Rice, 2007; Rousu, 2016; and Geerling and Mateer, 2015.

The authors of these papers discuss the benefits of using music to teach. For example, through their analysis of their music project, Tinari and Khandke (2000) discovered that using music to teach economics helps students realize that “economics is everywhere” and improves their ability to connect to the real life applications of the concepts presented. They report that students appreciated that they could connect their economics lessons to something relatable and enjoyable.

Related to Tinari and Khandke’s findings, Hall and Lawson (2008) tout that using specific song lyrics to teach economics results in students having fun and taking an active interest in the course assignments. Moreover, since students relate easily to lyrics provided to them from well-known songs and artists, they shared in-depth conversations about each song’s economic meanings – with some students being so interested that they would hold discussions outside of the classroom setting.

Hall et al. (2008) illustrated songs and their lyrics in animation format. They found that 76 percent of surveyed students paid attention to the economic explanations in the musical animations with the belief that this percentage could translate to students’ stronger understanding of economic concepts overall. Consistent with the other studies, Hall et al. (2008) found that music reinforced the relevance of economics in the students’ lives and “bridge[d] the gap...of connect[ing] with students on their level” (Hall et al., 2008). Furthermore, Hall et al. (2008) note that music has the potential to provide “the same vantage point” for all students when trying to grasp new material.

3. Background on Alexander Hamilton’s Significance in U.S. History and Economic Policies

When considering the use of songs from *Hamilton* to introduce economics concepts, it is crucial to note Alexander Hamilton’s significance and influence not only in U.S. history but also in economic policies of the past and present United States. Award-winning historian and Alexander Hamilton biographer Ron Chernow noted: “Except for [George] Washington, nobody [i.e. Hamilton] stood closer to the center of American politics from 1776 to 1800 or cropped up at more turning points” (Chernow, 2004). Alexander Hamilton’s importance is in part because of his official government appointment. He was the nation’s first Secretary of the Treasury and is credited as the “architect of the department” (U.S. Department of the Treasury, 2010). Hamilton advocated for a strong centrally controlled treasury – often pitting himself against the likes of Thomas Jefferson (Secretary of State at the time) over how much control the treasury should possess in regard to managing governmental accounts, tax policy, enforcing financial laws, and

more (U.S. Department of the Treasury, 2010).

Hamilton clashed with Jefferson over the idea of creating a national bank. Coinciding with the establishment of the First Bank of the United States in 1791, Hamilton also fought for the assumption of state debts by the federal government and the creation of a mechanism for collecting taxes (U.S. Department of the Treasury, 2010; PBS, 2000). The implementation of these three elements of Hamilton's financial plan ultimately provided the foundation for the nation's future economic and monetary policies. Through his financial plan and service as U.S. Treasury Secretary, Alexander Hamilton blazed a trail for trade, industry, the stock market, and banks and, according to Ron Chernow, he "was the messenger from a [economic] future we now inhabit" (Chernow, 2005).

4. What Economic Concepts Do the Songs of Hamilton Help Teach?

Hamilton provides numerous opportunities to engage students in discussions over a wide variety of economic concepts. These concepts (along with suggested discussion questions) are listed in Table 1 at the end of this section.

A. Trade-Offs and Opportunity Costs

Trade-offs and opportunity costs are a fundamental part of economics and they are usually addressed within the first couple weeks of any principles of economics course. Several songs from *Hamilton* teach about these concepts.

The song "Satisfied" has Angelica Schuyler (the daughter of prominent U.S. general Philip Schuyler) singing a toast to her sister Eliza and her sister's groom, Alexander Hamilton, at their wedding. While singing the toast, Angelica has a flashback to when she first met Hamilton. Angelica actually met Hamilton first, shared a mutual attraction, and could have pursued him. Instead, Angelica gave up her chance of courting Hamilton by introducing him to her sister. Angelica is pained by this decision, but provides three justifications as to why she made her decision, singing:

"I'm a girl in a world in which
My only job is to marry rich
My father has no sons so I'm the one
Who has to social climb
...
He's after me cuz I'm a Schuyler sister
That elevates his status, I'd
Have to be naïve to set that aside
...
I know my sister like I know my own mind
You will never find anyone as trusting or as kind

If I tell her that I love him she'd be silently resigned

He'd be mine

She would say, 'I'm fine'

She'd be lying."

To justify her decision, Angelica lists (1) She must marry somebody wealthy as the eldest daughter; (2) Hamilton is only interested in her because of her family's status; and (3) She genuinely cares about her sister's happiness and potential love interest in Hamilton. Even with these rationales in mind, it is clear that Angelica's choice of giving up her chance with Hamilton was difficult, especially because she seems to be in love with Hamilton. However, careful analysis of these lyrics shows that the rational part of Angelica's mind believes that she made the correct choice in the situation – there were just costly emotional trade-offs. Instructors can use these lyrics to show their students that Angelica's goal is for her sister to live a life of love and happiness; therefore, to obtain this goal, Angelica forwent her own chance to pursue the love of her life.

In the song "Say No to This," the trade-offs of having an extra-marital affair are highlighted. Hamilton was alone and was propositioned by Mrs. Maria Reynolds. After a month of having an affair with Mrs. Reynolds, Hamilton receives a letter from Mr. James Reynolds, stating:

"Dear Sir, I hope this letter finds you in good health
And in a prosperous enough position to put wealth
In the pockets of people like me: down on their luck
You see, that was my wife who you decided to f***

Uh-oh! You made the wrong sucker a cuckold
So time to pay the piper for the pants you unbuckled
And hey, you can keep seein' my whore wife
If the price is right: if not I'm telling your wife."

Later in the musical (in the song titled "The Reynolds Pamphlet"), we see that Hamilton did choose to keep seeing Mrs. Reynolds, and in the process paid over \$1,000 to Mr. Reynolds. The trade-off was both monetary for Hamilton, and, as we find out later in the show, political, because the exposure of the affair damaged Hamilton's political career. Mr. Reynolds faced trade-offs as well, because receiving \$1,000 meant consenting to allow his wife to have an affair.

"Your Obedient Servant" occurs near the end of the musical and Hamilton's life. It illustrates the letter-writing that went back-and-forth between Hamilton and Aaron Burr over the last few months of Hamilton's life before their fateful duel (see Chernow, pages 680-694). Burr was angry, because he thought Hamilton was slandering him. Hamilton's trade-offs in the song are evident when Aaron Burr sings:

“Careful how you proceed, good man
Intemperate indeed, good man
Answer for the accusations I lay at your feet or
Prepare to bleed, good man.”

Hamilton’s trade-off is whether to apologize or risk his life in a duel and he decides:

“Burr, your grievance is legitimate
I stand by what I said, every bit of it
You stand only for yourself
It’s what you do
I can’t apologize because it’s true.”

“Your Obedient Servant” could also be used to start a discussion about the role of a culture, the traditions within a culture, and how culture influences perceived benefits and costs. In the 21st century in America, the idea of dueling to defend one’s honor seems silly to most people. But it very much mattered to Hamilton and Burr in the early 1800s.

“Your Obedient Servant” also highlights opportunity costs. The opportunity cost for Hamilton to defend his honor was to fight in a duel. The opportunity cost for him to get out of the duel was to apologize, which he viewed as dishonorable. With either choice, there was a large opportunity cost for Hamilton.

A second song also illustrates opportunity costs, titled: “You’ll be Back.” This song is sung by King George, and it is basically his love-letter to the American colonies. He describes the opportunity cost that the colonies will incur if they choose to secede from Britain. He sings:

“Oceans rise, empires fall
We have seen each other through it all
And when push comes to shove
I will send a fully armed battalion to remind you of my love!”

And later...

“Don’t throw away this thing we had
Cuz when push comes to shove
I will kill your friends and family to remind you of my love.”

Clearly, King George wanted the colonies to think about the cost of their decision. The King was attempting to convey that the colonists, should they attempt to break from the British crown, would be at war. This would mean an enormous opportunity cost, as the cost of independence

is war with one of the most formidable armies ever (at the time). The trade-offs that the colonists were facing would not have made this an easy decision and can help explain why about 16 percent of the total American population (19.8 percent of total white Americans) during the revolution did not support independence from 1775 to late 1783 (Smith, 1968). Reasons for colonists to stay loyal to the crown included the possible loss of their farms or property if no revenue was earned during the span of their military service, the potential loss of overall economic mobility if they were not loyal, and the chance of losing their lives (Ferling, 2010).

B. Central Banking and Monetary Policy

How did the U.S. first form a central bank? Why did the U.S. decide to run a national debt with the federal government assuming the debts of all states? Naturally there were congressional debates, and the musical *Hamilton* portrays these debates through a rap-battle. "Cabinet Battle #1" is a debate between Alexander Hamilton and Thomas Jefferson over whether a national bank should be formed and whether the federal government should assume the debts of the states. This is a rare song that provides instructors a way to teach about central banks. Initially, George Washington welcomes the crowd, saying that there will be a debate in part over Hamilton's plans to start a national bank and have the U.S. assume the debts of the states. Jefferson is first to speak, and he sings:

"[Hamilton] His plan would have the government assume state's debts

Now, place your bets as to who that benefits:

The very seat of government where Hamilton sits

...If New York's in debt –

Why should Virginia bear it? Our debts are paid, I'm afraid

Don't tax the South 'cuz we got it made in the shade

In Virginia, we plant seeds in the ground

We create. You just wanna move our money around..."

Jefferson was clearly suspicious of a large national government having so much power and did not like the idea of having a central bank. In the late 1700s when the United States was first formed, many (like Jefferson) viewed federal government power suspiciously, which certainly was one reason why forming a central bank was controversial. Instructors could make the parallel to today (where many still disapprove of the Federal Reserve and find it controversial) with part of the reason being that the Federal Reserve has control over monetary policy without having to go through the usual legislative checks-and-balances. According to a 2015 Pew Research poll, 47 percent of Americans had a favorable view of the Federal Reserve while 39 percent had an unfavorable view (Maniam, 2015). Poll questions among economists did not ask whether economists had a favorable or an unfavorable view of the Federal Reserve; rather, their questions addressed specific policies. Responses in recent years illustrate a nearly even split of economists thinking that the Federal Reserve's policies are "about right" relative to thinking they are "too restrictive" (Associated Press, 2014; 2016).

The controversy surrounding the Federal Reserve has caused some contemporary political candidates to consider abolishing it. For instance, Senator (and former Republican presidential

candidate) Rand Paul is a major opponent of The Federal Reserve Bank, calling for an audit of the Fed's activities (Paul & Spitznagel, 2016; Cadei, 2016).

C. Public Choice Theory and Government Failures

Public choice theory assumes that politicians seek to maximize their own utility levels, rather than promote the best interests of society. Further, public choice theory examines the types of government failures that we would expect to arise from such decision-making. Common failures are bureaucratic inefficiency, the majority-rule problem, and the impact of special-interest groups (Baumol & Blinder, 2012).

In "The Room Where It Happens," Burr enviously speculates about Hamilton's financial plan negotiations with Thomas Jefferson and James Madison. During this specific meeting, Hamilton ultimately agreed to a compromise (The Compromise of 1790) that allowed his financial plans to pass in exchange for moving the United States capital from New York City to the yet unbuilt Washington D.C. (Ellis, 2000). The following is a breakdown of these negotiations in "The Room Where It Happens:"

Burr: Congress is fighting over where to put the capital—It isn't pretty. Then Jefferson approaches with a dinner and invite, And Madison responds with Virginian insight:

Madison: Maybe we can solve one problem with another and win a victory for the Southerners, in other words—

Jefferson: Oh-ho!

Madison: A quid pro quo

Jefferson: I suppose

Madison: Wouldn't you like to work a little closer to home?

Jefferson: Actually, I would

Madison: Well, I propose the Potomac

Jefferson: And you'll provide him his votes?

Madison: Well, we'll see how it goes

Jefferson: Let's go

Within these lyrics, Madison and Jefferson evaluate if they should allow the creation of the central bank (which they did not think was good for society) and agree to it as long as they could move the capital closer to Virginia (which shortens Jefferson's commute). The decision-making between Madison and Jefferson is a strong example of politicians not necessarily working for the good of the people but instead working in their own interest.

Later, Aaron Burr and the other non-participants who are singing about the compromise say:

Company: The art of the compromise—

Burr: Hold your nose and close your eyes

Company: We want our leaders to save the day—

Burr: But we don't get a say in what they trade away

Within these lyrics, Burr and company express disdain and overall disgust with their leaders' decision-making, lending itself to outcomes benefitting politicians and not the people who they serve. Through the analysis of the lyrics in "The Room Where It Happens," students and educators have the chance to discuss public choice theory in a relatable context while also making connections between historic and current events.

D. Income Mobility

There has been controversy recently over income inequality (e.g., see Piketty, 2014). Part of the issue deals with income mobility, which is the ability of someone in a lower income group to be able to move to a higher income group in the future. Some who study income inequality think income mobility is incredibly important, because higher income mobility means that even if incomes are unequal, there are opportunities for those who make lower incomes to earn higher incomes later in life (Greenstone, Looney, Patashnik, & Yu, 2013; Markandya, 1984). In fact, part of French economist Thomas Piketty's issues with inequality are that he thinks that owners of capital will always be able to earn higher rates of return and therefore will always keep getting richer (Piketty, 2014). Piketty fears the detrimental inequality dynamics among incomes when the growth rate of world output falls below the rate of return to capital, thus implying steadily rising inequality.

Income mobility surfaces in a couple of songs from *Hamilton*, including the opening number, "Alexander Hamilton." The song (and musical) opens with the lines:

"How does a bastard, orphan, son of a whore and a
Scotsman, dropped in the middle of a
Forgotten spot in the Caribbean by providence
Impoverished, in squalor
Grow up to be a hero and a scholar?

The ten-dollar founding father without a father
Got a lot farther by working a lot harder
By being a lot smarter
By being a self-starter."

Serving as a strong example of income mobility, the lyrics make it clear that Hamilton came from a desperately poor life but worked his way to a better life through hard work. Hamilton's trajectory could easily tie in to a discussion pertaining to income mobility in the United States where 44 percent of members in the bottom income quintile move to one of the upper income

quintiles over a span of six years (Perry, 2011). Furthermore, for households in the second to last, third, and fourth income quintiles, “more than half of each group moved to a different earnings quintile” over a six-year time period.²

Two other songs from Hamilton also touch on income mobility. In “My Shot,” we are introduced to Hamilton’s best friends and his personal outlook on life. In the song, the character Mulligan sings:

“Yo, I’m a tailor’s apprentice.
And I got y’all knuckleheads in loco parentis.
I’m joining the rebellion cuz I know it’s my chance
to socially advance, instead of sewin’ some pants.”

To Mulligan, hard work and demonstrating his value in the Army are ways to increase his future income. Coinciding with Mulligan’s comment is a comment made by Hamilton himself in the song “Right Hand Man,” where Hamilton sings that he was poor and, while poor, he was hoping for a war in order to improve his future prospects.³

E. Economic Freedom and Slavery

Many economists (Friedman, 1962, Friedman & Friedman, 1980, Hayek, 1973) have argued that economic freedom is essential for well-being. Indices published annually list economic freedom by country (Miller & Kim, 2016), and research has shown that economic freedom leads to economic growth (Bologna & Hall, 2014). One of the most egregious violations of this freedom occurs with slavery. *Hamilton* has a few songs that address slavery. For example, “My Shot” has lines by the character Laurens discussing that, while the country may wish for freedom from England, still “we’ll never be truly free until those in bondage have the same rights as you and me.” The character Mulligan also discusses the value of economic freedom in that he wants to advance from his job as a tailor into other lines of work. In “Cabinet Battle #1,” Hamilton chides Jefferson for owning slaves and questions his argument about why Virginia is so prosperous when he says, “Yeah, keep ranting. We know who’s really doing the planting.” He viewed Jefferson as a hypocrite for wishing that the U.S. colonies be free while its citizens owned slaves.

Hamilton and Jefferson disagreed over issues that impacted economic freedom. One was slavery, because Jefferson owned slaves while Hamilton wanted the United States out of the slave trade. They also differed on tax policies where Hamilton generally wanted higher tax rates than Jefferson. In 1790, Hamilton proposed an increase in the average rates of tariff duties; this increased rate surpassed the original five-percent rate to between seven and ten percent (Northrup & Turney, 2003). This soon became law affecting imported wines, distilled spirits, tea, coffee, and spices (Northrup & Turney, 2003). Hamilton also supported the Whiskey Tax, which was an excise tax of 9 to 20 cents per gallon on domestic distilled spirits (Baldwin, 1939; Northrup & Turney, 2003). Hamilton hoped to raise \$800,000 per year to help pay national and state debts (Ladenburg, 2007). Years later as President of the United States in 1801, Thomas Jefferson repealed the Whiskey Tax believing that such a tax (and taxes in general) deprived citizens of their unalienable rights as Americans (Ladenburg, 2007).

² 61 percent, 58 percent, and 55 percent, respectively (Perry 2011).

³ A note for instructors: if you plan on using the income mobility discussion questions for “Alexander Hamilton” and “Right Hand Man” in Table 1 verbatim, a good source for this data is Perry (2011).

F. Time Preferences and Short Run vs. Long Run

Previously, we discussed the song "Say No to This" with its illustration of trade-offs. Coinciding with trade-offs, "Say No to This" also serves as a great song to illustrate how short run and long run effects can differ. In the song, Hamilton discusses whether he can say no to an extra-marital affair with Maria Reynolds. The lyrics illustrate not only the historical Hamilton-Reynolds affair, but also the concept of time preferences. When initially confronted by Maria Reynolds' proposal to stay the night, Hamilton evaluates his situation, singing:

"Lord, show me how to
Say no to this
I don't know how to
Say no to this
But my God, she looks so helpless
And her body's saying, 'Hell, yes'"

Implicitly in the lyrics, Hamilton realizes that by staying with Maria, he will commit adultery. Therefore, one of Hamilton's trade-offs in this situation was gaining temporary satisfaction with Maria at the expense of not staying faithful to his wife.

Hamilton's decision-making in "Say No to This" could lead into a good discussion of discounting the future and the notion that many people have a bias towards the present. We witness this bias towards the present when Hamilton chooses to commit adultery for temporary satisfaction while not thoroughly thinking about the potential consequences of this action on his marital and political future. Classroom discussions tying in to "Say No to This" could involve retirement planning and programs like Save More Tomorrow (e.g., see Thaler & Sunstein, 2009), weight-loss bets, commitment mechanisms, life-cycle spending, and other topics about time-inconsistent preferences (e.g., see Crawford, 2014).

G. The National Debt and the Size of Government

As previously discussed, "Cabinet Battle #1" brings to life a debate between Hamilton and Thomas Jefferson about Hamilton's plan for the U.S. to assume the debts of the individual states. Jefferson is concerned about the size of the government and the location of government power (local vs. national), singing: "If New York's in debt why should Virginia bear it? Uh, our debts are paid I'm afraid, don't tax the South cuz we got it made in the shade." Hamilton counters by singing: "If we assume the debts, the union gets a new line of credit, a financial diuretic."

In the debate, Jefferson continues to sing: "This financial plan is an outrageous demand and it's too many damn pages for any man to understand." Jefferson's lines detailing the size of Hamilton's financial plan have relevance to modern U.S. politics, where several large spending bills worth hundreds of billions of dollars have been passed by politicians who have not read the bills, often because the bills are hundreds of pages long and the opportunity cost of reading them is high (Richardson, 2015; Condon, 2009; Boland, 2014; Mimms, 2014). One idea for economics instructors is to play "Cabinet Battle #1" and then ask students to think about the size of government in the 1790s relative to today and what the government size meant both for tax rates and for government spending.

H. Labor Economics

Many of the musical numbers in *Hamilton* could be used to teach labor economics. For our first example, we will consider the song "Right Hand Man." The general point of this song is that Washington desperately needs help. General Washington is struggling with a shortage of troops and maintaining soldier morale in the New York and New Jersey campaign, a series of battles against British forces for control over these two states during the American Revolutionary War (Long Island Historical Society, 1878). But the song starts with Alexander Hamilton who alludes to compensating wage differentials in the lyrics:

Hamilton: "As a kid in the Caribbean I wished for a war,
I knew that I was poor,
I knew it was the only way to... Rise up!
If they tell my story
I am either gonna die on the battlefield in glory or... Rise up!"

In this instance, Hamilton was willing to take a higher risk of death and join Washington's battalion in order to have higher lifetime wages.

The song "Non-Stop" is the last number of the first act. The United States has won the revolutionary war and Hamilton and Burr sing about the value of education and the value of hard work in building human capital. Part of what they discuss is Hamilton's quick career progression since he was willing to work "non-stop":

Burr: "Why do you write like it's going out of style? Write day and night like it's going out of style? ...How do you write like you're running out of time?"

This is a case where the lyrics can point to how earning human capital can impact future events. The song discusses how Hamilton contributed 51 essays to *The Federalist Papers*, which surely strengthened Hamilton's skills and made him more desirable for the position he later took as Secretary of the Treasury in George Washington's cabinet.

I. Rational Decision Making and Behavioral Economics

Many economics textbooks begin with an assumption that economic agents are always completely rational and therefore are making rational decisions. The song "Satisfied," discussed above, gives a great example of an agent making rational decisions. Angelica Schuyler liked Hamilton, but understood that it was not in her best interest to pursue him. While Angelica Schuyler may have successfully made a rational decision, many who study behavioral economics sharply criticize the assumption of rational actions. Thaler and Sunstein (2009) note that people could either behave like "econs" with perfect rationality, or behave like humans. In "Say No to This," we could argue that Hamilton was not behaving perfectly rational. Hamilton engaged in an affair and paid off James Reynolds in an attempt to keep it quiet. Later he published a pamphlet describing the affair in detail (in the song "The Reynolds Pamphlet").

Table 1 – Sample Discussion Questions for Songs in Hamilton

Song	Economic Concepts	Discussion Questions
"Alexander Hamilton"	Immigration, economic mobility	<p>1. What is meant by the phrase economic mobility?</p> <p>2. What percent of Americans in the bottom quintile in 2001 moved to a higher income quintile by 2007?</p> <p>3. How does French economist Thomas Piketty's argument about inequality relate to income mobility?</p>
"Cabinet Battle #1"	Establishment of the Federal Reserve Bank, Hamilton's financial plan, role/size of government, central banking	<p>1.) What is The Federal Reserve System (The Fed)? 2.) What are the benefits and drawbacks of having a strong national bank?</p> <p>3.) Jefferson chides Hamilton on the length of the financial plan. Sometimes in the present, politicians actually do not read laws prior to their approval due to their length. What are some current examples of this?</p> <p>4. Why might lawmakers choose to not read all bills prior to voting? What does that say about their incentives?</p>

<p>"My Shot"</p>	<p>Economic freedom, signaling, human capital</p>	<p>1.) In economics, what is the act of signaling? How does graduating from a particular college act as a signal?</p> <p>2.) We hear from a tailor's apprentice, who wants to join the war effort because he knows it is his chance to "socially advance". Today, what are actions people can take to advance to better jobs?</p> <p>3.) Hamilton sings that he thought he would not live past the age of 20. Suppose two otherwise identical people perceived different expected lifespans – one expected to live to 80 and the other to 40. How would that change their consumption and savings behavior? How would it change their decision to pursue advanced education degrees?</p>
<p>"Right Hand Man"</p>	<p>Compensating wage differentials, labor economics, income mobility</p>	<p>1. What are ways a person today can "rise up" to a higher income level in their lifetime?</p> <p>2. What is meant by income mobility? How mobile are incomes in the United States?</p> <p>3. What do economists mean by compensating wage differentials? What present-day occupations provide compensating wage differentials?</p>
<p>"Satisfied"</p>	<p>Trade-offs, opportunity costs, rational decision-making</p>	<p>1.) What does Angelica view as the opportunity cost of pursuing Hamilton?</p> <p>2.) Sometimes trade-offs are not monetary. What is an example of a trade-off a college student might face?</p> <p>3.) What does Hamilton gain if he pursues Angelica as a romantic partner?</p>

<p>"Say No to This"</p>	<p>Trade-offs, short run/long run decision-making, time preferences, opportunity costs</p>	<p>1.) What is meant when economists say somebody "discounts" the future?</p> <p>2.) How does Hamilton's decision-making in this situation tie into discounting the future?</p> <p>3.) What is a recommendation economists have implemented in an attempt to "nudge" people to save more?</p>
<p>"The Room Where It Happens"</p>	<p>Government failures, public choice theory</p>	<p>1.) Define public choice theory. Within this theory, what is believed to be the mindset of politicians? What is their motivation?</p> <p>2.) What is a real-world example of the special interest group effect?</p> <p>3.) Find a recent example where a U.S. politician has supported a major law only after receiving something in return for his/her home district.</p>
<p>"You'll be Back"</p>	<p>Opportunity costs</p>	<p>1.) What was the cost to the United States of the Revolutionary War?</p> <p>2.) Are there any examples where the opportunity cost of war has kept two countries from going to war?</p> <p>3.) According to King George, what is the colonists' opportunity cost if they succeed from the British crown?</p>
<p>"Your Obedient Servant"</p>	<p>Opportunity costs, trade-offs</p>	<p>1.) What is Alexander Hamilton's opportunity cost of ignoring Aaron Burr's challenge to a duel?</p> <p>2.) What is Alexander Hamilton's opportunity cost of deciding to accept Aaron Burr's challenge to a duel?</p>

5. Discussion

Hamilton is a unique show for many reasons, but one reason is how relevant the songs are to teaching economics. While other authors have discussed the value of using songs to teach, we know of no other scholarly paper that attempts to show how to use songs from one single movie, musical, or album to teach economics. The chart-topping musical *Hamilton* is rare in that this hit musical is full of examples of economic decision-making.

There are several ways an educator could use the songs from *Hamilton* to help their teaching. One way is choosing to use the occasional song from *Hamilton* in their selection of pre-class music. Another way is to play songs during class time. One song that is fantastic to use in the middle of class is "Your Obedient Servant.." It is a two-minute song, hence it does not take too long. The educator could then give students a "think-pair-share" activity where they are asked to answer the following questions:

- What was Hamilton's opportunity cost for accepting the duel? What was Hamilton's opportunity cost for not accepting the duel?
- What was Burr's opportunity cost for accepting the duel? What was Burr's opportunity cost for not accepting the duel?

This entire activity will take less than 10 minutes, will reinforce the concept of opportunity costs, and will quite clearly show students that opportunity costs need not be monetary in nature.

While our paper focuses on how to teach economic principles through the lyrics of *Hamilton*, one could also use these same lyrics and songs to reflect on the overall life of Alexander Hamilton and the policies he created as U.S. Treasury Secretary. For example, as previously discussed, "Cabinet Battle #1" highlights Hamilton's proposed and eventually installed financial plan. Through this plan, Hamilton proposed three recommendations: (1) The U.S. should create a central bank (The Federal Reserve); (2) The U.S. should assume the debts of the individual states; and (3) The U.S. should pay back the national debt accumulated during the Revolutionary War (Ellis, 2000). While his recommendations received backlash, Hamilton's plan eventually did pass due to the Compromise of 1790 (also known as the "Dinner Table Bargain") and is highlighted in the song "The Room Where It Happens." Specifically, the Compromise of 1790 allowed Hamilton's financial plan to pass with the stipulation that the U.S. capital would move from New York City to its current location of Washington D.C. These policies are not usually covered in most introductory economics courses, but this is another way educators could leverage the songs from *Hamilton* to educate students.

6. Conclusion

Using *Hamilton* to teach could provide several benefits. It could allow educators to connect more to students and their interests via music, show students how economics is applicable outside the classroom setting within U.S. history and politics, and interest students who might not have previously considered it (e.g. music majors) to pick up a major in economics.

We have presented an outline for economics educators to use *Hamilton* at a low-cost for the instructor. *Hamilton* is engaging, relatable, and popular among young adults, so it may encourage students to delve more into economic topics and even consider majoring in economics. To our knowledge, it provides the most individual economics lessons ever combined into one music source, including covering some economic topics (i.e. central banking) that are rarely found

in music. Therefore, incorporating economics lessons from *Hamilton* into the classroom could engage students better than simply using “chalk-and-talk,” could appeal to students’ general enjoyment of music, and could encourage the mentality to “think like an economist” with interesting real-world applications.

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