
An assessment of teaching economics with *The Simpsons*

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Abstract: This paper aims to quantify the effectiveness of teaching economics with video exemplars, mainly the US TV show *The Simpsons*. We regress students' exam scores on their performance on Simpsons and non-Simpsons pop quizzes. After controlling for students' quality difference and exam content, our results indicate that the performance of Simpsons' pop quizzes has a greater impact on student learning, particularly for grade C, D and F students.

Keywords: economic education; pop quiz; least squares; teaching economics; video exemplars; *The Simpsons*.

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Biographical notes: Shiou-Yen Chu is currently employed in the Department of Economics at the National Chung Cheng University. She received her PhD in Economics from the University of Missouri-Columbia in 2009 and MA in Public Finance from the National Chengchi University in 2003. After she earned her PhD degree, she took a position in the Department of Social Sciences at Southwestern Oklahoma State University (USA). Her current research and teaching interests are monetary economics, international finance and public economics. She has published papers in the *International Review of Economics and Finance* and the *Empirical Economics Letters*.

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1 Introduction

With the increasing role of technology in everyday life, alternatives to the chalk-and-talk approach, such as utilisation of video clips and PowerPoint slides, have been proposed to teach undergraduate economics (Becker et al., 2006; Sexton, 2006; Watts and Becker, 2008). Instructors are also encouraged to introduce pluralism into economic education, such as adding analytic exercises or real-life problems to the main concepts in standard texts (Garnett and Reardon, 2011).

In our classroom, we use video clips from *The Simpsons* to teach Principles of Economics in a regional American university. Our university has no economics majors, and most students take an economics course for general education credit. After

implementing this teaching strategy, class attendance improved. The qualitative results from the university evaluations show that students enjoy the relaxing and humorous atmosphere and become more engaged in learning economics.

The idea of incorporating *The Simpsons* into an economics classroom was launched by Hall (2005). *The Simpsons* is an animated television show involving an ordinary American family in the fictional city of Springfield, USA. The Simpson family includes the parents, Homer and Marge, and three children, Bart, Lisa, and Maggie. Hall stresses that popular culture like *The Simpsons* makes economics more comprehensible. Gillis and Hall (2010) extend *The Simpsons* to a discussion of policy issues. They show students some short clips or cite a few quotes from the scenes, and then ask them open-ended questions. Luccasen and Thomas (2010) incorporate *The Simpsons* scenarios into worksheets, providing question-based applications.

Previous studies have mainly described and illustrated *The Simpsons* in different disciplines. Empirical evidence of the efficacy of showing *The Simpsons* in an economics classroom is rarely discussed. In this paper, besides describing our pedagogy of teaching economics with *The Simpsons*, we attempt to quantify the effect of showing *The Simpsons* on students' exam performance. We develop pop quizzes associated with the video clips from *The Simpsons* and other sources. The content and/or the format of these pop quiz questions are revised on the exams. An ordinary least squares regression controlling for student characteristics, such as gender, major, and class is conducted to analyse the effects of Simpsons and non-Simpsons pop quizzes on exams.

We provide estimation results for three semesters: Fall 2011, Fall 2012 and Spring 2013. Except for Spring 2013, non-Simpsons questions do not affect exam scores at the 5% significance level. After taking students' quality difference into consideration, questions from *The Simpsons* have a positive effect for grade C, D and F students at the 1% significance level for all three semesters.

Teaching with *The Simpsons* has also been extensively applied in other subjects, such as psychology (Eaton and Uskul, 2004; Poonati and Amadio, 2010), humanities (Fink and Foote, 2007), public choice (Considine, 2006), English (Hobbs, 1998), political science (Armstrong, 2005), sociology (Scanlan and Feinberg, 2000; Delaney, 2008), and criminal law (Hermida, 2006). Poonati and Amadio (2010) conduct an outside-of-class experiment to evaluate students' understanding of operant conditioning, reinforcement, and punishment in psychology. Their results show that students who watch video clips (including *The Simpsons*) do not have a statistically significant advantage on a test than those students who do not watch video clips. However, students generally have great enjoyment when the lecture is combined with popular television programmes.

This paper is organised as follows. Section 2 describes the data. Section 3 presents methodology and results, and Section 4 concludes.

2 The data

The data was collected from Introduction to Macroeconomics classes taught by the same instructor during the Spring 2013, Fall 2012, and Fall 2011. Table 1 summarises the descriptive statistics of students' characteristics. Most of students were sophomores. We specify pre-pharmacy and pre-nursing students because they tend to be more motivated and receive a better semester grade than others. The grade shown in the table represents

the raw exam scores, excluding any extra credit. Around 60% of students received a grade of C and above in every semester.

Table 1 Descriptive statistics of student characteristics

<i>Number of students</i>		<i>Spring 2013</i>	<i>Fall 2012</i>	<i>Fall 2011</i>
Gender	Male	75	67	57
	Female	77	75	47
Class	Freshman	48	37	36
	Sophomore	67	85	46
	Junior	27	15	15
	Senior	10	5	7
Major	Business	25	28	19
	Pre-pharmacy and pre-nursing	59	66	48
	Others	68	48	47
Grade distribution	A (90%)	9	12	9
	B (80%)	32	33	33
	C (70%)	45	38	29
	D (60%)	36	32	15
	F (below 60%)	30	27	18
Total		152	142	104

At the beginning of the semester, students were notified that pop quizzes would be given occasionally and considered as extra credit. On a pop quiz day, the instructor spent two-thirds of class time lecturing and then showed students a video clip (around ten minutes) from *The Simpsons* or other sources. After the students watched the video, the instructor proposed one question related to the scenes and the lecture material of that day. Pop quizzes were addressed in short-answer format. Students were allowed to use their notes when taking pop quizzes. Each correct answer was given 1 point. Each wrong answer was given 0 points. In the following class the instructor did not return the quizzes but discussed the correct answers.

Questions with the same content were revised in multiple-choice format on the exams. During the Spring 2013 semester, in addition to a format revision, we rewrote the exam questions to a large extent to test students' comprehension of topics. Students who took the exam either received 0 points for a wrong answer or 2 points for a correct answer. For each class, the instructor prepared guided notes¹ and posted them on the course website. Students who missed a viewing of *The Simpsons* in class could still be exposed to the lecture material, but couldn't make up the pop quizzes.

This paper examines 13 Simpsons questions that cover the topics of supply and demand, profits, gross domestic product (GDP), unemployment, GDP deflator, exchange rates, and money. In Table 2, we present the Simpsons questions on pop quizzes and exams for Spring 2013. We cite the first question from Hall (2005) and develop the rest of the questions independently. There were four midterms in a semester. Each midterm had 50 multiple-choice questions. Questions 1–3 were tested on the first exam. Questions 4–8 were tested on the second exam. Questions 9–11 were tested on the third exam. Questions 12–13 were tested on the fourth exam. The instructor did not return the

exam copies to students but posted exam scores on the course website after all the students took an exam. Below we will briefly discuss the Simpsons questions.

2.1 Profits, revenues and costs

Hall (2005) suggests that the episode “Bart Gets An Elephant” can clarify the relationship between profits, revenues and costs. Bart and Homer run a business by charging \$1 for seeing the elephant and \$2 for riding the elephant. At the end of the day, Homer receives \$58 from sales and claims all is profit. However, the food bill for the elephant is \$300. Homer actually takes a loss of \$242.

We find the same concept in another episode² “Lard Of The Dance”. Apu tells Homer that he sells grease to the recycling plant for money. Homer decides to start his own grease business, collecting grease by frying bacon. Four pounds of grease are sold for 63 cents, but the cost of the bacon is \$27. Both episodes provide applications of the equation that profits equal revenues minus costs.

2.2 Normal goods

In the episode “Lisa’s Pony”, Homer fails to buy Lisa a new reed for her school talent show. To lighten Lisa’s spirits, Homer buys her a pony he cannot afford, putting the Simpson family in financial trouble. While prioritising expenses, Homer plans to reduce the demand for vaccination and Marge wants to cut the demand for beer. This implies vaccinations and beer are normal goods for Homer and Marge, respectively.

2.3 Externality

The topic of externality is implied in the episode “Lisa Gets An A”. Homer plans to fatten an eight-dollar lobster into an 80-dollar lobster. After the lobster grows, Homer considers it part of the family and wants to keep it alive. During dinner, the kids are upset that the lobster has been replaced on the table by cabbage. Homer asks Lisa, “What’s your problem, veggie? You do not even eat lobster”. Lisa replies, “No, but I enjoy the smell”. Lisa does not eat seafood, but she gains an external benefit from smelling it. Eating lobster in the Simpson family has a positive externality.

2.4 GDP and GNP

To clarify the difference between GDP and GNP, we utilise the episode “Homer and Apu”. Apu loses his job at the Kwik-E-Mart by selling tainted meat. To save his job, Homer and Apu fly to India to talk to the head of Kwik-E-Mart Corporation. Hence, we know Kwik-E-Mart is an Indian convenience store that operates in the USA. When measuring GDP with the income approach, Kwik-E-Mart’s profits will be counted in the US GDP and the India GNP.

Another episode, “Realty Bites”, can explain the expenditure approach of calculating US GDP. Marge works as a realtor for Lionel Hutz. Marge initially expresses her honest opinions about the properties and cannot make any sales. When the Flanders family becomes interested in a big house, she decides to conceal the truth that it was a murder house. In the end of the show, the house is destroyed so the Flanders family fails to purchase the house. However, if the Flanders bought the murder house, the transaction

would not affect current US GDP because it would be considered as a purchase of used goods.

In the episode “The Crepes of Wrath”, Bart is sent to France for an exchange student programme. Upon his return, he brings his families gifts from France. These purchases are considered as US imports. US net exports accordingly decrease and US GDP is unaffected.

2.5 Consumption, investment, and savings

In the episode “Burns Verkaufen der Kraftwerk”, Mr. Burns decides to sell the Springfield nuclear power plant to German investors for \$100 million. This news increase the firm’s stock price and brings the employees (stock holders) peculiar benefits. The members of the Simpsons family have different plans for this additional income. We use this scenario to discuss the concept of marginal propensity to consume.

In “The Twisted World of Marge Simpson”, Marge is ejected from the Springfield Investorettes and gets back a deposit of \$500. She decides to buy a franchise business with the money. After paying the owner of pretzel wagon, she gets a promotional video and ingredients. This example is used to illustrate the meaning of investment in GDP. The purchases of new equipment and machinery, rather than stocks and bonds are considered as an investment in GDP.

2.6 Unemployment

In the episode “Marge Gets A Job”, Marge works as a full-time employee at the Springfield Nuclear Power Plant to help pay for the cost of house foundation repair. Marge’s resume states that she has been a homemaker since 1980. According to the Bureau of Labor Statistics (BLS), the working-age population includes persons in the labour force and not in the labour force. The latter includes homemakers, retirees, full-time students, and persons with disability. After Marge gets a job, the labour force will increase and the working-age population will stay the same.

Another episode, “The Springfield Connection”, gives an example of frictional unemployment. After successfully helping Homer get back \$20 from a robber, Marge decides to become a police officer. In the end of the show, Marge is disappointed with the police corruption and resigns from the force. After Marge quits her job, she becomes frictionally unemployed. In the episode “Simpsons Roasting On An Open Fire”, Homer works as a Santa Claus in the mall. Homer loses his Santa job after Christmas, which is an example of seasonal unemployment.

2.7 CPI and GDP deflator

The consumer price index (CPI) and the GDP deflator are both price indices, but calculated differently. The CPI focuses on the items that a typical consumer buys; while the GDP deflator focuses on all goods and services produced within a country. In the episode “A Hunka Hunka Burns In Love”, the Simpsons visit Bob’s Big Buddha, a Chinese restaurant operating in Springfield. Bart, a regular consumer, orders shark butt with butt sauce. If the price of this meal increases, the price change will be reflected on the CPI and the GDP deflator.

Table 2 Simpsons questions on the pop quizzes and exams for the Spring semester of 2013

Topic	Pop quiz	Exam
Q1	<p><u>Costs, profits, and revenues:</u></p> <p>Fifth Season: Bart gets an Elephant.</p> <p>Q1: How much revenue does Homer earn?</p> <p>Q2: How much profit does Homer receive?</p>	<p>Chris sells four packs of football cards on Sports.Com for \$10, but he bought them for \$50. Chris received a profit of and revenue of _____, respectively.</p> <p>(1) \$10; -\$40. (2) -\$40; \$10. (3) \$10; \$50. (4) \$10; \$40.</p>
Q2	<p><u>Normal goods:</u></p> <p>Third Season: Lisa's pony</p> <p>Marge: "We're just going to have to cut down on luxuries".</p> <p>Homer: "Well, you know, we're always buying Maggie vaccinations for diseases she doesn't even have!"</p> <p>Marge: "We could cut down on beer."</p> <p>When the Simpson family is in financial trouble, they plan to reduce the demand for vaccinations and beer.</p> <p>This implies vaccinations are _____ for Homer, and beer is a _____ for Marge. (normal good, inferior good, substitute, or complement)</p>	<p>Mr. and Mrs. Moore are in financial trouble. They have the following conversation.</p> <p><i>Mr. Moore: "We're just going to have to cut down on luxuries."</i></p> <p><i>Mrs. Moore: "Well, you know, our children do not need to see the dentist this year."</i></p> <p><i>Mrs. Moore: "We could cut down on beer."</i></p> <p>The dialogue above implies that Mr. and Mrs. Moore consider their children's dental services and beer, respectively, as _____.</p> <p>(1) Normal goods. (2) Inferior goods. (3) Substitutes. (4) Complements.</p>
Q3	<p><u>Externality:</u></p> <p>Lisa Gets an A</p> <p>Homer: What's your problem, veggie? You do not even eat lobster. Lisa: No, but I enjoy the smell.</p> <p>Eating lobster in the Simpsons family is a _____ (public good, positive externality, negative externality)</p>	<p>Which of the following is considered as an example of public goods?</p> <p>(1) The smell of hamburgers enjoyed by a vegetarian. (2) The college education you received. (3) The tornado siren heard by you and your friends. (4) The dirty dishes left overnight in the sink by your roommate.</p>

Table 2 Simpsons questions on the pop quizzes and exams for the Spring semester of 2013 (continued)

Topic	Pop quiz	Exam
Q4 GDP and GNP: Fifth season: Homer and Apu	Kwik-E-Mart is an Indian convenience store, but operating in the USA. Its profit will be included in the _____ GDP (USA or India) and _____ GNP. (USA or India)	TATA Motors is an Indian automotive manufacturing company. In 2012, it earned a profit of \$1.5 billion from the vehicle assembly operations in the UK. This profit is included in the _____ GDP and _____ GNP. (1) India; UK. (2) UK; India. (3) UK; UK (4) India; India.
Q5 GDP: Ninth season: Realty Bites	If the Flanders bought the murder house, would this transaction be included in the current US GDP? Why?	Jessica and Ray purchased a house, without knowing that people were murdered in it several years ago. According to the lecture, this purchase will _____. (1) Not be included in the current US GDP because it is a purchase of used goods. (2) Be included in the current US GDP because it is an investment. (3) Be included in the current US GDP because it is a purchase of durable goods. (4) All of the above are correct.
Q6 Net exports and GDP: First season: The Crepes of Wrath	Lisa: [Bart] brought us gifts. His first unselfish act. These gifts will be considered as US _____ exports or imports). These purchases will _____ US net exports (increase, decrease, not affect).	Chris went to Taiwan and bought some souvenir postcards for his family. These postcards will be considered as US _____. US net exports will accordingly _____ and US GDP will _____. (1) Imports; decrease. (2) Imports, increase; stay the same. (3) Imports, decrease; stay the same. (4) Exports, increase; increase.

Table 2 Simpsons questions on the pop quizzes and exams for the Spring semester of 2013 (continued)

<i>Topic</i>	<i>Pop quiz</i>	<i>Exam</i>
Q7 <u>Consumption and saving:</u> Third Season: Burns Verkaufen der Kraftwerk	Q1: Homer made \$25 from the stock market and spent \$20 on beer. What is Homer's Marginal Propensity to Consume (MPC)? Q2: Marge wants to save part of the money Homer made from the stock market. This implies Marge's Marginal Propensity to Consume (MPC) is _____. (Negative, Zero, Greater than 1, Positive but less than 1.	Daniel made \$5200 from the stock market. He spent \$3000 and opened a savings account for the rest of the money. This implies Daniel's Marginal Propensity to Consume (MPC) is (1) Negative. (2) Zero. (3) Greater than 1. (4) Positive but less than 1.
Q8 <u>Investment and GDP:</u> Eighth Season: The Twisted World of Marge Simpson	Marge spent \$500 starting her pretzel business. Is this \$500 considered as an investment in GDP?	Which one of these would NOT constitute investment in GDP? (1) Moe takes his professor's advice to remodel his bar. (2) Marge gets a promotional video and ingredients to start her pretzel business. (3) The Springfield Investorettes buy 1,000 shares of Oklasoft (Oklahoma's fastest-growing software company). (4) General Motors builds a new assembly plant.
Q9 <u>Unemployment:</u> Sixth season: The Springfield connection	After Marge resigns from the police officer position, she becomes unemployed. (cyclically, frictionally, structurally, seasonally.)	Johnathon worked as a software engineer. He recently resigned from his job because he did not like his company's new direction. After Johnathon quit his job, he became _____. (1) Frictionally unemployed. (2) Cyclically unemployed. (3) Structurally unemployed. (4) Seasonally unemployed
Q10 <u>Unemployment:</u> Fourth season: Marge Gets a Job	Marge has been a homemaker since 1980. According to the BLS, after Marge gets a job, the labour force will _____ (increase, decrease, or stay the same) and the working-age population will _____ (increase, decrease, or stay the same).	Chelsea has been a homemaker since 1990. Recently she just got a full-time job in a donut shop. According to the BLS, after Chelsea got a job, the labour force would _____ and the working-age population would _____. (1) Increase; increase. (2) Increase; stay the same. (3) Stay the same; decrease. (4) Stay the same; stay the same.

Table 2 Simpsons questions on the pop quizzes and exams for the Spring semester of 2013 (continued)

<i>Topic</i>	<i>Pop quiz</i>	<i>Exam</i>
Q11 GDP deflator and CPI Thirteen season: A Hunka Hunka Burns In Love	Bart orders shark butt with butt sauce in a Chinese restaurant operating in the USA. Suppose the price of shark butt increases. This price change will be reflected on _____. (CPI, GDP deflator, both or neither)	Which of the following price changes will be reflected on US GDP deflator and CPI? (1) The price change of an imported root beer from Australia purchased by Americans. (2) The price change of Canada-made tires purchased by US auto repair shops. (3) The price change of Dell computers purchased by US business firms. (4) The price change of an Arby's roasted beef sandwich ordered by Americans.
Q12 Exchange rate: Sixth season: Bart vs. Australia	In the video, Bart owed the Australian guy AUD\$900. If the exchange rate between US dollar and Australian dollar is AUD\$1= US\$1.05. How much is AUD\$900 worth in terms of U.S dollars?	If the exchange rate between US dollar and Australian dollar is US\$1= AUD\$0.97. How much is AUD\$900 worth in terms of US dollars? (1) \$900 x 0.97. (2) \$900/0.97. (3) \$900 + (1/0.97). (4) None of the above.
Q13 Commodity money: Twelfth season: trilogy of error	Milhouse: I can't go to Juvie. They use guys like me as currency. If this statement is true, what type of currency is it? (commodity money or fiat money)	Cigarettes were widely used as currency in prisoner-of-war camps. What type of currency is it? (1) Commodity money. (2) Fiat money. (3) Monopoly money. (4) All of the above.

Table 3 Non-Simpsons questions on the pop quizzes and exams

Topic	Pop quiz	Exam
Q1 Inflation ¹	What is the main reason for German hyperinflation? Who benefited from hyperinflation? Who lost from hyperinflation?	Who benefited from German hyperinflation? (1) People who earned fixed incomes. (2) People who had savings in the bank. (3) People who had debts. (4) Both (1) and (2) benefited from hyperinflation.
Q2 Keynes and classical economics ²	(1) What economist wrote a book about what caused the Great Depression and what to do about it? (2) What economist invented the concepts, such as GDP, inflation and unemployment we talked about today? (3) What economist helped the US get out of the Great Depression in the 1930s? (4) What was his solution to the unemployment during Great Depression?	1 According to the classroom discussion, macroeconomic concepts such as gross domestic product, inflation rate and unemployment rate were first invented by (1) Adam Smith. (2) Milton Friedman. (3) F.A. Hayek. (4) John Keynes. 2 According to the classroom discussion, which economist helped the US get out of the Great Depression in the 1930s? (1) Adam Smith. (2) Milton Friedman. (3) F.A. Hayek. (4) John Keynes.

Notes: ¹Hyperinflation: GCSE History, <https://www.youtube.com/watch?v=lfwIXdOoWiE>

²The Commanding Heights: the Battle for the World Economy, Disc 1: The Battle of Ideas, starting time: 19:26

³"Fear the Boom and Bust" a Hayek vs. Keynes Rap Anthem, <https://www.youtube.com/watch?v=d0nERTFo-Sk>

⁴⁻⁵Lecture material

⁶The Commanding Heights: the Battle for the World Economy, Disc 5: The New Rules of the Game, starting time: 41:54

Table 3 Non-Simpsons questions on the pop quizzes and exams (continued)

<i>Topic</i>	<i>Pop quiz</i>	<i>Exam</i>
Q3 Keynes and classical economics ³	Specify the economist who proposed the following statement. Hayek (H) or Keynes (K) (1) "In the long run, we are all dead". (2) The author of "general theory of employment, interest and money". (3) The government should increase spending during recession. (4) The government should steer the market. (5) The markets should be set free. (6) Proposes ' $Y = C + I + G$ '. (7) Wrote a textbook covering the macroeconomic concepts, such as GDP, inflation and unemployment we talk about today. (8) An economist of the Austrian school. (9) What are the animal spirits?	Specify the economist who proposed the following statement. Hayek (H) or Keynes (K) (1) Boost aggregate demand during recessions. (2) $Y = C + I + G$. (3) The market should be set free. (4) An economist of the Austrian school.
Q4 Federal Reserve Banks ⁴	Which state has two regional Federal Reserve Banks within its boundary?	According to the map shown in class, which state has two Federal Reserves Banks within its boundary? (1) New York. (2) California. (3) Kansas. (4) Missouri.

Notes:

¹Hyperinflation: GCSE History, <https://www.youtube.com/watch?v=lfvIXdOoWiE>²The Commanding Heights: the Battle for the World Economy, Disc 1: The Battle of Ideas, starting time: 19:26³Fear the Boom and Bust" a Hayek vs. Keynes Rap Anthem, <https://www.youtube.com/watch?v=d0nERTFo-Sk>⁴Lecture material⁵The Commanding Heights: the Battle for the World Economy, Disc 5: The New Rules of the Game, starting time: 41:54

Table 3 Non-Simpsons questions on the pop quizzes and exams (continued)

Topic	Pop quiz	Exam
Q5 Money supply ⁵	<p>(1) Write down the <u>equation of exchange</u>.</p> <p>(2) According to the <u>equation of exchange</u>, when we have unexpected deflation, the Fed should _____ (increase or decrease) the money supply to help the debtors.</p> <p>Based on your answer (2), the Fed should</p> <p>(3) Conduct open market purchases or open market sales?</p> <p>(4) Increase or decrease required reserve ratio?</p> <p>(5) Increase or decrease discount rate?</p>	<p>Suppose the economy is experiencing an unanticipated event. Most farmers are debtors and suffer from high borrowing costs due to the occurrence of this event. The Fed would like to do something to help these farmers. What kind of events might it be and what kind of actions should the Fed take to help the farmers?</p> <p>(1) An unexpected fall in price; decrease the money supply</p> <p>(2) An unexpected fall in price; increase the money supply</p> <p>(3) An unexpected rise in price; decrease the money supply</p> <p>(4) An unexpected rise in price; increase the money supply</p> <p>1 According to the video shown in class, the Asian financial crisis started in _____</p> <p>(1) Korea</p> <p>(2) Thailand</p> <p>(3) Taiwan</p> <p>(4) Indonesia</p> <p>2 According to the video shown in class on 11/30/2012, which organisation provided loans to the countries in the Asian financial crisis?</p> <p>(1) World Bank</p> <p>(2) WTO</p> <p>(3) OECD</p> <p>(4) IMF</p>
Q6 Asian Financial Crisis ⁶	<p>(1) In which country did the Asian Financial Crisis start?</p> <p>(2) What international organisation provided loans to help the countries in crisis?</p> <p>(3) List 3 Asian countries from the video that were affected by the crisis.</p>	

Notes: ¹Hyperinflation: GCSE History, <https://www.youtube.com/watch?v=IwIXdOoWiE>

²The Commanding Heights: the Battle for the World Economy, Disc 1: The Battle of Ideas, starting time: 19:26

³Fear the Boom and Bust" a Hayek vs. Keynes Rap Anthem, <https://www.youtube.com/watch?v=d0nERTFo-Sk>

⁴⁻⁵Lecture material

⁶The Commanding Heights: the Battle for the World Economy, Disc 5: The New Rules of the Game, starting time: 41:54

2.8 Exchange rates

In the episode “Bart vs. Australia”, Bart plays a joke on an Australian boy, making a collect phone call to him. The boy’s father is billed AUD\$900. As the exchange rate between the US dollar and Australian dollar is given, for example, AUD\$1= US\$1.05, students learn to calculate the value of AUD\$900 in terms of US dollars.

2.9 Commodity and fiat money

In the episode “Trilogy of Error”, Bart and Milhouse are found possessing illegal fireworks and face being sent to children’s prison. Milhouse says “I can’t go to Juvie. They use guys like me as currency”. If this were true, Milhouse would be considered as commodity money, which has intrinsic value.

For comparison, we gave a few pop quizzes pertaining to non-Simpsons video clips or lecture content. The non-Simpsons video clips we chose to complement the lecture material cover the topics of inflation, classical versus Keynesian economics, monetary policy, and the Asian financial crisis. These ‘real-world’ problems can be answered directly from viewing the videos or listening to lectures. We altered the format but kept the content of pop quizzes and exams the same. Questions 1–3 were tested on the third exam. Questions 4 and 5 were tested on the fourth exam. Table 3 summarises the non-Simpsons questions.

Table 4 Statistics of variables

<i>Variables</i>	<i>Spring 2013</i>					
	<i>Sample</i>	<i>Mean</i>	<i>Standard deviation</i>	<i>Maximum</i>	<i>Minimum</i>	<i>Correlation with ATTENDANCE</i>
<i>EXAM</i>	152	0.707	0.129	0.935	0.284	0.416
<i>SIMPSONS</i>	152	0.042	0.012	0.065	0.005	0.782
<i>NON-SIMPSONS</i>	152	0.031	0.010	0.053	0.011	0.639
<i>ATTENDANCE</i>	152	0.777	0.161	1.000	0.182	1.000
	<i>Fall 2012</i>					
	<i>Sample</i>	<i>Mean</i>	<i>Standard deviation</i>	<i>Maximum</i>	<i>Minimum</i>	<i>Correlation with ATTENDANCE</i>
<i>EXAM</i>	142	0.714	0.134	0.940	0.355	0.403
<i>SIMPSONS</i>	142	0.045	0.010	0.065	0.017	0.681
<i>NON-SIMPSONS</i>	142	0.032	0.012	0.048	0.000	0.760
<i>ATTENDANCE</i>	142	0.828	0.150	1.000	0.286	1.000
	<i>Fall 2011</i>					
	<i>Sample</i>	<i>Mean</i>	<i>Standard deviation</i>	<i>Maximum</i>	<i>Minimum</i>	<i>Correlation with ATTENDANCE</i>
<i>EXAM</i>	104	0.739	0.133	0.950	0.415	0.575
<i>SIMPSONS</i>	104	0.044	0.011	0.060	0.008	0.810
<i>NON-SIMPSONS</i>	104	0.042	0.013	0.060	0.000	0.841
<i>ATTENDANCE</i>	104	0.856	0.174	1.000	0.227	1.000

Table 5 Regression results

	Spring 2013			Fall 2012			Fall 2011		
	Total	A + B	C + D + F	Total	A + B	C + D + F	Total	A + B	C + D + F
Constant	0.397*** (0.000)	0.82*** (0.000)	0.399*** (0.000)	0.305*** (0.000)	0.92*** (0.000)	0.34*** (0.001)	0.358*** (0.000)	0.72*** (0.000)	0.36*** (0.001)
<i>GENDER</i>	-0.027 (0.13)	-0.03 (0.19)	-0.02 (0.28)	-0.005 (0.77)	0.05*** (0.001)	-0.02 (0.35)	-0.03 (0.108)	-0.006 (0.67)	0.011 (0.62)
<i>MAJOR</i>									
Business	0.048* (0.06)	-0.03 (0.19)	0.06** (0.02)	0.018 (0.49)	-0.024 (0.32)	0.02 (0.46)	0.026 (0.34)	-0.009 (0.67)	0.018 (0.53)
Pre-pharmacy and pre-nursing	0.053*** (0.007)	-0.01 (0.47)	0.037** (0.04)	0.029 (0.18)	-0.002 (0.92)	0.006 (0.79)	0.056*** (0.01)	0.0006 (0.96)	0.045 (0.12)
<i>CLASS</i>									
Sophomore	0.04* (0.06)	0.03* (0.06)	0.05*** (0.01)	0.078*** (0.0007)	-0.03* (0.08)	0.085*** (0.0003)	0.012 (0.58)	0.0000 (0.99)	0.027 (0.31)
Junior	0.086*** (0.001)	0.05*** (0.008)	0.096*** (0.0003)	0.074** (0.04)	-0.09* (0.08)	0.009*** (0.003)	0.004 (0.89)	-0.03 (0.148)	0.047 (0.17)
Senior	0.075** (0.047)	0.02 (0.48)	0.036 (0.34)	0.062 (0.28)	-0.009 (0.87)	0.014 (0.78)	0.078** (0.048)	0.002 (0.93)	0.122** (0.03)
<i>SIMPSONS</i>	2.98*** (0.0006)	0.99 (0.14)	2.25*** (0.006)	6.56*** (0.000)	-1.59 (0.13)	5.35*** (0.000)	6.46*** (0.000)	4.25*** (0.0001)	5.33*** (0.0001)
<i>NON-SIMPSONS</i>	4.26*** (0.000)	-0.79 (0.28)	3.65*** (0.0001)	1.258 (0.16)	0.67 (0.37)	0.69 (0.43)	1.81* (0.07)	0.23 (0.79)	0.88 (0.41)
R-squared	0.38	0.37	0.38	0.39	0.28	0.35	0.56	0.34	0.49
Sample size	152	41	111	142	45	97	104	42	62

Notes: *p*-values are reported in the parentheses. **p* < .10; ***p* < .05; ****p* < .01. The values for *GENDER* are assigned as follows: (Female = 0, Male = 1).

3 Methodology and results

We used least squares regression to illustrate the relationship between exam scores (*EXAM*), gender (*GENDER*), major (*MAJOR*), class (*CLASS*), and pop quiz performances of Simpsons questions (*SIMPSONS*) and non-Simpsons questions (*NON-SIMPSONS*). *EXAM* is the dependent variable and defined as the sum of the midterm scores divided by 400. *GENDER*, *MAJOR*, and *CLASS* are dummy variables identifying students' characteristics.

SIMPSONS and *NON-SIMPSONS* are defined as the points earned on Simpsons and non-Simpsons pop quizzes divided by 400, respectively. Table 4 presents the statistics of all variables for three semesters. The mean score and standard deviation of *SIMPSONS* and *NON-SIMPSONS* are quite similar. In every semester, the standard deviation of *EXAM* is around 0.13. The correlation between *ATTENDANCE*³ and *NON-SIMPSONS* is above 64%. The correlation between *ATTENDANCE* and *SIMPSONS* exceeds 68%. Moreover, including *ATTENDANCE* in the regression did not significantly change the results. In order to avoid multicollinearity problems, we excluded *ATTENDANCE* in our estimation.

The estimation results are provided in Table 5. For the whole sample, the performance of Simpsons questions has a larger effect on exam scores than that of non-Simpsons questions at the 1% significance level in the Fall 2011 and Fall 2012. In Spring 2013, we revised both the format and content of Simpsons questions on the exams. This may explain why the impact of Simpsons quiz scores on exams decreases. In Spring 2013, compared with Simpsons questions, non-Simpsons exam questions are more closely related to their pop quiz counterparts. Thus, non-Simpsons questions may have a greater effect on exam performance than Simpsons ones. After controlling for student quality, Simpsons questions have a positive effect for grade C, D and F students at the 1% significance level for all three semesters.

4 Conclusions

In a general education classroom, students come from a variety of disciplines and lack sufficient background knowledge of economics. Students also feel less enthusiastic about a general education course since it is not explicitly relevant to their majors. This paper presents and assesses an alternate teaching method in an introductory economics class. By regressing students' exam scores on the performance of Simpsons and non-Simpsons pop quizzes, we attempt to quantify the impact of teaching Economics with *The Simpsons*. We present estimation results from three semesters. While keeping the content of exam and quiz questions similar, Simpsons quiz performance of grade C, D and F students are significantly associated with their exam scores.

This research has two limitations. First, we could not separate attendance's effect on exam scores from the effect of taking a pop quiz on exam scores. Second, we did not conduct an outside-of-class experiment, gathering one-time data. Instead, as Moreno and Valdez (2007) suggest, we assessed students' immediate and delayed effects of learning from the video exemplars in a real classroom. Without a control group including students who do not watch *The Simpsons*, we might not be able to provide a strong conclusion about the effectiveness of teaching economics with *The Simpsons*. However, our study

adds insight to current research about introducing innovative pedagogies to the college classroom.

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Notes

- 1 Guided notes are lecture notes with blank spaces. Students can fill in the blanks for key concepts and definitions. Guided notes excluding answers are posted on the course website.
- 2 We chose the episode 'Bart Gets and Elephant' for the Simpsons exam question.
- 3 *ATTENDANCE* is defined as the percentage of attending classes during the whole semester.