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ECONOMIC INSTRUCTION

Using Art (Paintings, Drawings, and Engravings) to Teach Economics

Michael Watts and Chineze Christopher

The authors provide a brief review of how economists have dealt with art in their research and more popular writings, and then consider the case that has been made for using art and other visual materials in general education and—in very few cases—to teach economics. A new Web site on Art and Economics is introduced that makes it easier for economics instructors to find and use art with their students. They discuss several different ways of using the art in classes, and provide a table with over 50 paintings from the Introduction slide show at the Web site to illustrate the range of economic concepts and issues that can be taught with art.

Keywords *art, artists, paintings, teaching economics*

JEL codes *A12, A20, A22, Z11*

BACKGROUND AND LITERATURE REVIEW

Like economists, artists often study “the ordinary business of life.”¹ Many well-known artists have painted at least some works featuring daily activities, and some artists specialize in that genre of paintings. So it is not really surprising that examples of consumption, goods and services, production, labor, occupations, specialization, natural resources, capital resources, markets, public goods, elections, money, banking, financial crises, unemployment, poverty, wealth, and discrimination have been featured in paintings, drawings, and engravings. Or as John Dewey phrased that idea in 1932, in a series of lectures that became his book *Art as Experience* (1934/2005), art is a way to capture the experience of life, and to transmit that experience to those viewing art. Dewey

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argued against those who wanted to separate art from experience, and called for including art in general education rather than putting it on a pedestal for a cultural elite engaging in conspicuous consumption and leisure.

Many economists have studied various aspects of the economics of art, and a few have considered broader impacts of art on economic history, and even on the field of economics. For example, in John U. Nef's *Cultural Foundations of Industrial Civilization* (1958), focusing on the "aesthetic basis of civilization" in periods after the renaissance "cult of delight"—which he noted was also central in Macaulay's historical writings—Nef argued that "The coming of civilization depended also upon the spread of good form in the arts and in the art of living, upon a clarification and a discipline in the instruments used by artists in achieving their results in every media" (p. 123). He noted that while methods for mass producing inexpensive products proceeded far more rapidly in England than in France from the mid-sixteenth to the mid-seventeenth century, France was able to hold to and advance the search for quality in production and consumption, which also shaped the kind of industrial civilization that developed in Western Europe. Nef concluded, "There is an important sense in which the dedication of the Europeans to the construction of a beautiful Europe, by the strengthening of fine craftsmanship in the service of the crown and the various ranks of the nobility and higher bourgeoisie, was essential to industrialism" (135).

Currid (2007), not an economist, provided a similar (albeit updated) argument in her book on how fashion, art, and music drive the New York City "Warhol Economy." Zablutney (1999) reviewed artistic images of commerce produced in late-eighteenth-century London. Nygren (1988) reviewed money as a theme in American painting. Moore (2004) offered a heterodox perspective on the relationship between political economy and art, but still stressed the links between economic structures and conditions and art.

Some prominent economists' concerns about cultural and creative issues influenced by social and economic institutions have been featured in their writings, and influenced and/or been influenced by the social circles in which they moved (e.g., see Throsby [2011] on John Ruskin; Balisciano and Medema [1999] on Lionel Robbins; and Goodwin [2011] on Keynes and the Bloomsbury group). Wight (2006) reviewed arguments on using literature, painting, and the other "noble arts" to develop individual character in Adam Smith's *The Theory of Moral Sentiments* and *Lectures on Rhetoric and Belles Lettres*. Smith even claimed that using literature and art to do this was more effective than having people read philosophers' works on ethics.

The role of income in encouraging or discouraging the quantity and/or quality of art has been considered by some economists; for example, Nef (1958, 152) endorsed Plato's identification of the two main causes of a deterioration of the arts: wealth and poverty,² while Barber (1999, 2011) considered the effects of the drop in national income during the Great Depression on public support for the arts. The relationship between income and art has been taken up by other social scientists, too. For example, in an article that prompted responses from four prominent sociologists, Lizardo (2008) argued that the "stratification" of ownership and consumption of art was better predicted by educational attainment than by income.

Not surprisingly, most of the work economists have done on art analyzes various aspects of markets for art, across many genres, time periods, and locations. To list only a few such examples, see Goetzmann, Renneboog, and Spaenjers (2011), Galenson (2008), and Solkin (1992). Other economists have dealt with public good aspects of art (e.g., Van Houdt 1999; Goodwin 2005; and Zuidvaart 2011). Tyler Cowen (1998, 2002, 2005) has carved out a special niche in investigating the effects of market forces and international trade on cultural heritage and expression.³

Turning to the literature on promoting more effective teaching and learning in economics and other subject areas, there are many studies on visual learning styles, promoting students' ability to visualize mathematical or other quantitative relationships, and how instructors can use visual displays (including videos and animation) to improve teaching in different disciplines (e.g., Lin and Atkinson 2011; Thomas, Place, and Hillyard 2008; Woolner 2004; Goldfarb 2002; Gahegan 2000; Flood, Heath, and Lapp 1997; and Sinatra 1986). But Mahzarian Ranaji (quoted in Berrett 2012), a Harvard professor of psychology, recently claimed "There's no evidence, zero, that teaching methods should be matched up with different learning styles. It's intuitively appealing, but not scientifically supported." A case for featuring art in general education to develop deeper understanding and complex and subtle aspects of critical thinking, building on ideas from Dewey (1934/2005) and more recent work on learning theory by Bruner and Vigotsky, is presented in Eisner's (2004) *The Arts and the Creation of Mind*.

Very little work on visual learning has been done for economics teaching and classes per se, but Boatman, Courtney, and Lee (2008) found that a preference for visual learning had a positive effect on student learning in introductory economics classes, while Cohn et al. (2001, 2004) found that using graphs in principles classes had negative or no significant effect on student learning, and later investigated factors related to student attitudes about graphs, and the relationship between those attitudes and students' performance in economics classes.

This broad but brief literature review shows that art has drawn the interest of many economists, dating back to the time that economics emerged as an autonomous discipline, but especially over the past 50 to 75 years. Despite that, economists have not generally tried to use art to make economics more visual, memorable, or even beautiful in their teaching, or to take advantage of paintings and other forms of art that deal with economic ideas and issues and the ordinary business of life. In the rest of this article, we describe and provide examples of how that can be done, highlighting a new resource that makes it easier for instructors to do that.

ART AND ECONOMICS: A WEB SITE FOR ECONOMICS TEACHERS

At a new Web site (<https://intra.krannert.purdue.edu/sites/econandart/Pages/Home.aspx>), a series of PowerPoint slide shows featuring paintings, prints, drawings, etchings, and lithographs are available for classroom use. There is no charge for using the site, but users must agree not to download, copy, or print the images of the artwork.⁴

There are currently four types of slide shows available: (1) an introductory set of slides, providing a brief rationale for using art to teach economics, and an overview using over 50 works of art to illustrate a wide range of economic concepts and issues; (2) several slide shows on specific economic topics and issues (including "Labor, Occupations, Specialization, and the Division of Labor"; "Leisure and Recreation"; "Natural Resources and Agriculture"; "Capital Resources and Technology"; "Money, Banking, Financial Crises, and Bubbles"; "Demographics and Life Cycles"; and "Economic Functions of Government, and Public Choice"); (3) slide shows on works by individual artists, including Norman Rockwell, Diego Rivera, and the Breughels; and (4) a "Coming Attractions" slide show showing a few examples of works that have been collected for slide shows on many different topics that are still under development, currently including "Goods and Services"; "Scarcity, Choice, and Opportunity Cost"; "Markets and Exchange"; "Income

(Absolute and Relative), Income Distribution, and Happiness”; “Discrimination”; “Altruism and Charitable Works”; “Urbanization”; “Risk and Entrepreneurship”; “International Economics”; “Property Rights and Enforcement”; “Economic Systems”; “Soviet Art”; “WPA Art”; and slide shows on other individual artists, including Thomas Hart Benton, Jacob Lawrence, Katsushika Hokusai, William Hogarth, and H.D. Tylle.

Table 1 lists the paintings and drawings included in the introductory slide show, the name of the artist, the date the work was done, the gallery or museum in which the work is displayed (if applicable), at least one major economic concept or issue that is illustrated in the work, and a brief synopsis of how the artist depicted the economic content. The format of the table broadly parallels the table in Watts and Smith (1989), which identified passages from works of literature and drama dealing with economic concepts, issues, and themes. The order of paintings in table 1 follows the order in which they appear in the introductory slide show on the Web site.

Table 1 will be useful to someone deciding whether or not to use the Web site, and demonstrates the wide range of economics content reflected in the art. But indirectly, it also makes another important point, because the difference between looking at the paintings and looking at the list of art and the verbal descriptions in the table could hardly be more stark and simple. In a word, the artwork is visual. In a few words, it is often stunningly visual. But on the other hand, some works were painted to show aspects of life that are painful, grim, or ugly, such as poverty, discrimination, disease, or the inherent loss of resources associated with war and various natural disasters. Whether the art is beautiful, stark, or intentionally ugly and horrific, however, it is typically memorable because of its visual impact. In many cases, the works are also memorable because the visual impact is used to create a stronger emotional impact than lectures, textbooks, or graphs. Taking advantage of that in the classroom requires some planning and care, and at times may even entail the risk of upsetting some students; but used effectively, it can be an important asset in engaging students.

Some pieces of art have less direct visual impact until students learn more about the work. In many cases this happens because the art presents a “story” that only has meaning for those who understand the story being told.⁵ For example, in a painting by Moretto da Brescia from the 1540s, a wealthy young man wearing an ermine cape is sitting at a table with a collection of ancient gold coins, looking decidedly unhappy. In the language of the period, he suffers from melancholy. The reason for that is provided by the inscription on his cap, in Greek, which translates as “Alas, I desire too much.” Knowing that, the painting becomes a remarkable representation of the ideas of scarcity and unlimited wants.

Other paintings are allegorical or mythological, once again requiring some explanation for most contemporary viewers. For example, Domenichino’s painting from 1616–18, *Apollo and Neptune Advising Laomedon*, depicts the story from Ovid’s *Metamorphosis* in which the founder of Troy agrees to pay the two gods (disguised as mortals) for their expertise on how to build the walls of the city so that they will never be taken by land or sea. The walls are built to those specifications, but when Laomedon refuses to pay the gold he promised, the Trojans eventually pay the price for that breach of contract and property rights. Today most people only know the Helen of Troy, Paris, and Achilles story; but was it love or economics that led to the fall of Troy? Or was Helen perhaps also an example of a kind of property, at least as seen by some characters in the *Iliad*?

Hans Holbein’s allegorical *Triumph of Riches* and *Triumph of Poverty* are perhaps the most famous of the paintings and drawings by many artists that look at the causes and consequences of

TABLE 1
 Paintings in the Introduction Slide Show for the Art and Economics Web Page

Artist	Title	Date of painting	Gallery/Museum	Economic concept, issue, or theme	Description
Hans Collaert	<i>The Art of Copper Engraving</i>	1600	NA	Human capital; Labor; Specialization; Capital	Skilled workers using production methods of the time period.
Edward Hicks	<i>The Cornell Farm</i>	1848	National Gallery of Art, Washington, DC	Natural resources and agriculture; Capital resources and technology; Labor; Occupations; Specialization	A large, prosperous farm with cattle, horses, orchards, fields, workers, and many capital improvements.
Joseph Mallord William Turner	<i>Keelmen Heaving in Coals by Moonlight</i>	1835	National Gallery of Art, Washington, DC	Labor; Occupations; Specialization and division of labor	A scene from the River Tyne, near Newcastle.
Douglass Crookwell	<i>Paper Workers</i>	1934	Smithsonian American Art Museum, Washington, DC	Labor; Capital; Automation; Productivity	A highly stylized painting of identical/interchangeable workers operating a huge, high-speed printing press.
Johann Zoffany	<i>Colonel Mordaunt's Cock Match</i>	1784–86	Tate Gallery, London	Leisure; Recreation; Role of government	A large crowd, betting on the outcome of fights that are now illegal in many nations.
John Everett Millais	<i>Hearts are Triumps</i>	1872	Tate Gallery, London	Leisure; Recreation	Wealthy young ladies competing in cards and courting.
George Seurat	<i>A Sunday on La Grande Jatte</i>	1884–86	Art Institute of Chicago	Leisure; Recreation	A wide range of people and pets, walking in a park on a river.
Allan Rohan Crite	<i>Sunlight and Shadow</i>	1941	Smithsonian American Art Museum, Washington, DC	Income distribution; Segregation/Discrimination	Three generations of black families in a community park near urban apartment complexes in Roxbury, Massachusetts.
Norman Rockwell	<i>Freedom from Want/Thanksgiving</i>	1943	NA	Income distribution; Consumption	A Thanksgiving turkey dinner served to a comfortable, middle class family.
Andy Warhol	<i>Soap</i>	1962	Anthony Meier Fine Arts Gallery, San Francisco	Goods; Demand; Advertising	A Brillo box.
Edward Burra	<i>The Snack Bar</i>	1930	Tate Gallery, London	Consumption; Goods and services	Customers eating at a snack bar.

(Continued on next page)

TABLE 1
 Paintings in the Introduction Slide Show for the Art and Economics Web Page (Continued)

Artist	Title	Date of painting	Gallery/Museum	Economic concept, issue, or theme	Description
Nathaniel Bacon	<i>Cookmaid with Still Life of Vegetables and Fruit</i>	1620–25	Tate Gallery, London	Goods and services; Consumption; Labor; Occupations; Specialization and division of labor	<i>Beautiful food and a beautiful cook.</i>
Anonymous	<i>Cloth Market in 's-Hertogenbosch, Netherlands</i>	1530	Noordbrabants Museum, Netherlands	Markets; Exchange; Buyers and sellers	<i>Stalls at a large outdoor market, in a stylized painting that looks more modern than it is.</i>
Balthazar Nebot	<i>Covent Garden Market</i>	1737	Tate Gallery, London	Markets; Buyers and sellers	<i>Buying and selling in an open market.</i>
Joseph Mallord William Turner	<i>Fishing Boats with Hucksters Bargaining for Fish</i>	1837–38	Art Institute of Chicago	Markets; Buyers and sellers; Risk	<i>Buying fish at the source, on the ocean.</i>
Johann Zoffany	<i>The Tribuna of the Uffizi</i>	1772	The Royal Collection, London	Markets; Public goods	<i>Dozens of masterpieces from the Uffizi museum shown hanging in one gallery—but this mix was never actually displayed together.</i>
George Caleb Bingham	<i>The County Election</i>	1851–52	St. Louis Art Museum	Role of government; Social and legal framework; Public choice	<i>An election scene from Saline County, Missouri, with voters and candidates acting on self-interest, including drinking.</i>
James Gillray	<i>John Bull and the Sinking Fund/A Pretty Scheme for Reducing Taxes and Paying off the National Debt</i>	1807	NA	Economic functions of government; Public choice	<i>England (John Bull) is staggered by an enormous bag of money representing the national debt. Lord Petty stands atop the bag, shoveling coins to greedy government officials.</i>
O. Louis Guglielmi	<i>Relief Blues</i>	1938	Smithsonian American Art Museum, Washington, DC	Economic functions of government; Unemployment; Income redistribution; Public choice	<i>A relief worker making a home visit and filling out forms for a family seeking income support during the Great Depression.</i>
Joseph Mallord William Turner	<i>Battle of Trafalgar</i>	1806–8	Tate Gallery, London	Economic functions of government; National defense	<i>The British fleet fighting a joint French and Spanish fleet during the Napoleonic Wars.</i>
Paul Nash	<i>Totes Meer (Dead Sea)</i>	1940–41	Tate Gallery, London	Economic functions of government; National defense; Opportunity cost	<i>Wrecked war planes from WWII at a salvage and recycling field in England.</i>
Katsushika Hokusai	<i>The Great Wave off Kanagawa</i>	1830–32	Art Institute of Chicago	Risk; Entrepreneurship	<i>A huge rogue wave threatens boats with sailors.</i>

(Continued on next page)

TABLE 1
 Paintings in the Introduction Slide Show for the Art and Economics Web Page (Continued)

Artist	Title	Date of painting	Gallery/Museum	Economic concept, issue, or theme	Description
Alexandre Hogue	<i>Dust Bowl</i>	1933	Smithsonian American Art Museum, Washington, DC	Risk; Natural resources; Agriculture	Severe drought, before windbreaks and other methods to reduce erosion were adopted.
Hans Holbein	<i>The Triumph of Riches</i>	1532	Louvre Museum, Paris	Distribution of income; Human capital; Luck	Allegorical figures representing the sources, consequences, and moral risks of wealth and good fortune.
Moretto da Brescia	<i>Portrait of a Young Man</i>	1540–45	National Gallery, London	Scarcity; Wants; Income distribution	A wealthy young man isn't satisfied; the Greek inscription on his hat says "Alas, I desire too much." The wayward son is forgiven and welcomed home with a feast.
Bartolomé Esteban Murillo	<i>The Return of the Prodigal Son</i>	1667–70	National Gallery of Art, Washington, DC	Altruism	An elderly woman lives simply, thinking of heavenly rewards to come.
Roger Medearis	<i>Godly Susan</i>	1941	Smithsonian American Art Museum, Washington, DC	Happiness; Consumption; Goods and services	The Saint has withdrawn from the pursuit of worldly goods and services, living in a cave to contemplate his spiritual life and help creatures in need, including a lion.
Joachim Patiner	<i>Landscape with St. Jerome</i>	1524	The Prado Museum, Madrid	Happiness; Consumption; Goods and services	A young ballet dancer talking with a wealthy old patron in a top hat and tails.
Jean-Louis Forain	<i>Dancer and Abonn�e at the Opera</i>	1925	NA	Labor; Occupations; Specialization; Leisure and recreation; Income distribution	The artist's friend—a dancer at the Moulin Rouge.
Henri de Toulouse-Lautrec	<i>Avril</i>	1893	NA	Labor; Occupations; Specialization; Leisure and recreation	Figures representing fertility and abundance—especially agricultural production. One figure may represent Bacchus.
Lucia Signorelli	<i>Allegoria della Fecondit� e dell'Abbondanza</i>	1500	Uffizi Gallery, Florence	Scarcity; Goods and services; Production; Agriculture; Prosperity	A well-dressed woman at a table in an elegant caf�.
Fernand Lungren	<i>The Caf�</i>	1882–84	Art Institute of Chicago	Goods and services; Leisure and recreation; Income distribution	A wealthy couple who collect art, shown as stiff and separate as their outdoor sculptures.
David Hockney	<i>American Collectors [Fred and Marcia Weisman]</i>	1968	Art Institute of Chicago	Altruism; Self-interest	A homeless Gypsy family with their possessions on a handcart, starting a fire to stay warm.
Frederick Walker	<i>The Vagrants</i>	1868	Tate Gallery, London	Income distribution; Poverty	(Continued on next page)

TABLE 1
Paintings in the Introduction Slide Show for the Art and Economics Web Page (Continued)

Artist	Title	Date of painting	Gallery/Museum	Economic concept, issue, or theme	Description
Jerome Myers	<i>In Lower New York</i>	1926	Portland Art Museum	Relative income; Happiness	Children playing in a New York tenement.
Hieronymus Bosch	<i>Death and the Miser</i>	1485–90	National Gallery of Art, Washington, DC	Choice; Opportunity cost; Income; Happiness	As death enters his bedroom, a man him to keep working to make more money, while others try to lead him to salvation.
Ivan Le Lorraine Albright	<i>That Which I Should Have Done I Did Not Do (The Door)</i>	1931–41	Art Institute of Chicago	Choice; Opportunity cost; Buyer's remorse	A door/coffin with a wreath shows that choices that could have been made during life are permanently foreclosed at death.
George Catlin	<i>La Salle's Parry Feasted in the Illinois Village</i>	1847–48	National Gallery of Art, Washington, DC	Economic systems	European explorers welcomed by American Indians.
Anonymous, Kanō School	<i>Arrival of the Westerners</i>	Early 17th century	The Portland Art Museum	Economic systems	Portuguese traders arrive in Japan.
Giovanni Michele Granieri	<i>The Lottery Drawing in Piazza</i>	1756	The Ringling Museum, Sarasota, FL	Markets; Exchange; Role of government	Originally called "A Crowded Marketplace," the painting shows a winning lottery ticket being drawn on the balcony of the City Hall.
Andy Warhol	<i>Mao</i>	1973	Art Institute of Chicago	Economic systems	Monumental portrait of Mao-Tse-Tung, 15 feet tall.
Domenichino	<i>Apollo and Neptune Advising Laomedon</i>	1616–18	National Gallery, London	Contracts; Property rights and enforcement	Laomedon agrees to pay Apollo and Neptune in gold to make the walls of Troy impregnable from land or sea, but then refuses to pay. Troy falls.
Joseph Mallord William Turner	<i>Spitehead: Two Captured Danish Ships Entering Portsmouth Harbour</i>	1807–9	Tate Gallery, London	Property rights; Incentives; Economic role of government	The captured ships will be sold at auction, with prize money distributed to crews of the ships that captured them.
Francisco de Goya y Lucientes	<i>Monk Pedro de Zaldivia shoots the Bandit Marragato</i>	1806–7	Art Institute of Chicago	Property rights and enforcement	A humble Spanish monk shoots an infamous bandit—one panel from a series of six.

(Continued on next page)

TABLE 1
 Paintings in the Introduction Slide Show for the Art and Economics Web Page (Continued)

Artist	Title	Date of painting	Gallery/Museum	Economic concept, issue, or theme	Description
John Phillip	<i>The Dying Contrabandista</i>	1858	The Royal Collection, London	Property rights and enforcement	A romantic scene of love and death set in Spain, like Bizet's contemporary work, "Carmen."
George Tooker	<i>Waiting Room</i>	1959	Smithsonian American Art Museum, Washington, DC	Government; Public choice; Bureaucracy	A crowded, depersonalized waiting room with people standing in numbered cubicles, caught up in a massive bureaucracy.
Pieter Brueghel the Elder	<i>Netherlandish Proverbs</i> [also called <i>The Blue Cloak or the Topsy Turvy World</i>]	1559	Staaliche Museum, Berlin	Too many to list	Over a hundred proverbs depicted in one painting, many with economic themes.
Peter Blume	<i>The Rock</i>	1944–48	Art Institute of Chicago	Natural, human, and capital resources	A symbolic painting, often interpreted as rebuilding after the destruction of WWII.
René Magritte	<i>The Human Condition</i>	1933	National Gallery of Art, Washington, DC	Natural resources; Labor	A realistic painting within a painting, showing exactly what is seen outside through a window. From a long genre of paintings on art and illusion raising questions about the purpose of art and artists, sometimes humorously.
J. Theodore Johnson	<i>Chicago Interior</i>	1933–34	Smithsonian American Art Museum, Washington, DC	Happiness and income; Urbanization	A young woman sits in a Chicago hotel room, reading a magazine, in winter. It is hard to tell if she is shown as happy or not, unless you know she is the artist's wife, painted just after they were married.
Edvard Munch	<i>The Scream</i>	1895	National Gallery, Oslo	Alienation; Externalities	A figure on a road overlooking Oslo cries out. Possible influences for the painting include red skies caused by the eruption of Krakatoa, a nearby slaughterhouse and "madhouse," Munch's sister's manic depression, and mummies he may have recently seen in Paris and/or Florence.

personal success and failure. But here, too, the allegorical figures and content must be explained for most modern viewers.

In other cases, the general subject and economic content in pieces of art is apparent, but background information about the scene that is shown and/or the artist can be used to make the image even more interesting and memorable, and to promote class discussions of the art and economics. For example, Jerome Myers painted scenes of New York tenements in the 1920s and 1930s, powerfully illustrating issues of poverty and income distribution. But the structure and content of his paintings are more interesting and explained more fully by knowing that near the end of his career he said, “Others saw ugliness and degradation there, I saw poetry and beauty.”⁶ The poetry and beauty come through in the paintings, and that can be used to raise basic questions about happiness as a function of absolute and/or relative income and consumption—a topic studied by many economists in recent years (Clark, Frijters, and Shields 2008).

How can economics instructors use the paintings, drawings, and slide shows provided on the Web site? Let us briefly review some of the options, knowing full well that some instructors will see other methods.

The simplest and shortest approach, which we have used successfully with both U.S. and international classes, is to show an individual piece of art to launch a discussion on an economic concept or issue, usually with little or no other introduction, and certainly not an introductory lecture on the idea. Using a single piece of art this way often leads to a broad, open-ended discussion, with different viewers seeing different ideas or possibilities in the art. This is illustrated in Bohanon (2011), who takes his principles classes to a campus art museum, has each student pick one painting, and write up a brief description of the economic ideas they see portrayed (in a haiku, a short explanation of the haiku, and what the student sees in the painting).

Except for the allegorical and “story” paintings described above, it is relatively easy for economists to look at paintings or drawings and see economic concepts, issues, or themes—if they are depicted. But obviously a major reason for not doing that is the high search costs entailed in finding good paintings to use. That, of course, is a basic rationale for this Web site, and organizing most of the slide shows by concept or topic.

Once a painting on a concept or topic has been selected to use as a starting point for class discussion, the simplest and probably most effective way to proceed is to display the painting for the class to see and consider for a minute or two. The instructor can then open the discussion by asking a leading question (e.g., “Do you think the characters in Jerome Myers’ paintings of New York tenements are shown as happy or unhappy?”). If the painting selected is allegorical or a “story” picture as discussed above, then the relevant background information about the symbols or story will have to be provided to the students, too.

Even if there is not time for class discussions on all of the topics covered in a course, or for instructors who are devout (and skilled, one hopes) lecturers, paintings can be used effectively at the start (and/or in the middle or end) of otherwise standard lectures, introducing at least that much variety and additional interest to the class session.

A logical “next step” is to use two or more paintings on a related topic. An easy way to do that is using one painting to introduce a topic and another painting to conclude, review, and sum up the class session. If this is done frequently throughout the course, students quickly adapt to the format. Many students find it enjoyable and in some ways reassuring to see the concepts introduced and reinforced in a visual, nontechnical format.

A more extensive approach, using many paintings to help teach a concept or issue, is directly supported by the structure of the slide shows on the Art and Economics Web site, which can usually be shown in full to a class (without extensive commentary or student discussion) in about five to ten minutes. Or the students can be assigned to view a slide show as an out-of-class assignment, and perhaps be required to turn in answers to one or more of the discussion questions at the end of the programs, which are discussed below.

Interestingly, as the full slide shows, or at least more pieces of art dealing with a common concept or issue, are used in classroom presentations, the range of the classroom discussion typically narrows, becoming more directive and focused, and less exploratory. In other words, this more directed approach uses a set of works of art to help teach or to reinforce understanding of a particular concept or issue.

That is not meant to claim it is better or worse to use the art this way, rather than using just one or two paintings to initiate a more freewheeling discussion on some broader topic. We see value in both approaches, and leave the choice or mix of approaches to individual instructors where it belongs, and in any case will always reside. But to promote the second approach with viewers who have gone through the full slide shows on particular economic concepts and issues, or works by an individual artist, each of the slide shows on the Art and Economics Web page, except the Introduction program, ends with a set of discussion questions titled, “Is a Picture Worth a Thousand Words?” There are usually between four and eight discussion questions for each slide show, with most asking viewers to use what they have seen in the art to answer the kinds of questions that are regularly featured in undergraduate economics courses. Some examples are provided below:

From “Natural Resources and Agriculture”:

- Give examples of paintings that show pure “gifts of nature” and natural resources, and others that show natural resources that have been made more valuable through the use of labor or capital goods. If labor and capital have been used to make natural resources more valuable, how would you classify the resource then—as land (natural resources), labor, or capital?

From “Capital Resources and Technology”:

- Identify examples of capital resources owned by families, private businesses, and the government. Which of these three groups do you believe invests the most in capital resources?
- Is capital usually a substitute or complement for labor (skilled and unskilled), and for natural resources?

From “Labor, Occupations, Specialization and the Division of Labor”:

- Which of the paintings show skilled labor, and which show unskilled labor? How do workers become more skilled?
- Are specialized or self-sufficient workers more likely to have high incomes?
- What good and bad features of different jobs are illustrated in the paintings? For example, which of the jobs seem to involve more risk of injury to workers, or doing more interesting

work in pleasant worksites? How are good and bad features of different jobs likely to affect the wages or salaries paid to workers in those jobs?

From “Leisure and Recreation”:

- How have changes in technology affected the overall amount of recreation and leisure available to people, and the mix of leisure or recreation activities they pursue?
- Is the distribution of leisure and recreation equal or fair? Is it more often enjoyed by those with more income and wealth, or by males?

From “Money, Banking, and Financial Crises”:

- Do the paintings and drawings suggest ways in which financial crises from earlier centuries were different from those in the last century or recent decades? Do they suggest key similarities? What role does psychology and mob or “bandwagon” behavior play in financial crises?
- What is money? Is gold always money, or is money always gold? What makes money money? What makes money socially useful and important when things are stable? What kinds of problems do financial crises and unstable money cause or make worse?

From “The Role of Government; Public Choice”:

- What kinds of goods and services, including institutional structures, can governments provide that encourage market activity, economic growth, and prosperity? Which of the paintings illustrate those goods, services, and institutions?
- Do public officials and government workers always represent the best interests of the people? Can some kinds of government policies reduce incentives for people to work, save, and invest? Do special interest groups ever acquire too much influence in setting public policies? Which of the paintings illustrate some aspects of these kinds of government failure?

CONCLUSION

An interesting and obvious question, which we have not yet studied in any formal way, is how effective are the slide shows in teaching concepts and issues, compared to traditional lectures or to other online and distance learning approaches, or when used in combination with standard lectures or distance learning materials?

Informally, we have asked spouses, friends, and even participants in Learning in Retirement programs who have seen the slide shows, but in many cases have not taken courses in economics, whether they felt they could at least begin to answer the discussion questions, based just on seeing the slide shows. Thus far their answers have been strongly affirmative, with only modest qualifications. “Modest” is actually a literal characterization of some of the qualifications, reflecting some viewers’ sense of modesty in claiming to understand what many of them view as a difficult subject. Sadly, in many cases they also noted unpleasant or at least mixed memories of principles

courses they took as undergraduates, and of their performance in those classes. But overall, in terms of using art to teach economics and interest people in economic concepts and issues, we find these responses and the answers to the discussion questions that the respondents offer quite encouraging.

A formal study would be interesting, of course, and add to the limited literature noted above on visual learning in economics. But even if the cognitive gains are not significantly (let alone substantively) different from what students learn in a standard course that is all or mostly straight lecture, there is still a utility maximization argument for using art to help teach economics (including the utility of both students and instructors). Bringing artists' sense of beauty and truth to economics classes is another way to water what many current and former students view as a very dry field. And many of the students who already like economics courses and instructors will appreciate another way of looking at the topics, based on the ordinary business of life as seen and depicted by artists.

NOTES

1. Watts (2003) and others made similar claims about literature and drama. Other economists have done the same for different kinds of cultural media, including feature films, documentaries, music, and animated films and videos. In his article on Adam Smith's use of the "noble arts," Wight (2006, 156n) provides a long list of references on using all of these media to teach economics, with the notable exception of painting/art. This exception shows that, for the most part, using art to teach economics is untraveled ground. Zevin (1980) suggested using artifacts and visual images, including "art" (left at that generic level), to teach economics at the precollege level; but all of his specific examples feature artifacts, or drawings and advertisements of artifacts. In 2011, at the first national conference on teaching economics and research in economic education sponsored by the American Economic Association Committee on Economic Education and the *Journal of Economic Education*, Watts organized a panel discussion that featured presentations on the Web site on Art and Economics featured here, and papers by Bohanan (2011) and Cotti and Johnson (2012).
2. Both economists and art educators have also noted the importance of the rising quantity and value of leisure time versus time spent working, for example in Greenwood and Vandenbroucke (2005) and White (1975).
3. World history and geography textbooks, even at the precollege level, often use art to illustrate cultural and economic differences across time and nations.
4. Digital images for most of the art are available on other Web sites, such as Wikimedia Commons.
5. Optional text screens are now being added to the Web site slide shows to provide background information on the economic content shown in the art—especially for these "story pictures" and allegorical paintings—and on the artists and the works of art. Only the introductory slide show includes explanatory text slides as separate screens. The first software platforms used for the Web site, including standard wiki platforms, did not support the multiple optional text slides. After some customization by information technology (IT) specialists at Purdue University, the current platform will. Optional text slides are now being posted for the introductory slide show, and will be posted for the other slide shows over the next year as they are completed.
6. This kind of information will be provided in the slide shows using the optional text slides.

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