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Illustrative Assignments to Incorporate Research and Writing in Introductory Economics Classes

Two relatively simple techniques are described to incorporate both research and writing into introductory-level economics classes. In one, students are asked to investigate the degree of price variation for a single product or service in a local metropolitan area. For the other, students prepare an opinion editorial about some policy topic related to the course. Several completion and grading approaches permit these methods to be scaled feasibly for larger classes. These projects require students to examine the aspects of some material presented in class in greater detail, to develop some understanding of research approaches in economics, and to get practice in writing about economics issues, even in an initial course.

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1 The author developed the pedagogical techniques described in this paper initially, but over the past 10 years they are been utilized in classes taught jointly with his colleague, Carl Liedholm. Professor Liedholm made a number of suggestions that improved these techniques, for which the author is very grateful. The author also thanks two anonymous reviewers and the editor for very helpful comments.

1. Introduction

Instructing introductory classes covering economics involves a number of challenges, both substantive and pedagogical. Substantively, one wants students not only to understand and be able to apply the fundamental theorems and models but also to understand and appreciate the importance of the assumptions of the models and how those assumptions affect the results. To encourage student interest, it also seems important to link the theory and facts with relevant policy issues. Pedagogically, it is often difficult to incorporate research and writing because of the size of the class or the limited experience of the students with economics.

A relatively extensive literature now exists that documents two characteristics commonly found in teaching of introductory economics classes. First, a number of instructors and researchers have called for and noted the value of increased use of active-learning experiences in such classes, including computer exercises, experiments, research, writing assignments, and group interaction, among others. Yet, the fundamental method of teaching these types of classes remains the traditional lecture model (although perhaps now using PowerPoint rather than traditional "chalk & talk").

Allgood, Walstad, and Siegfried (2015), in a broad survey article about teaching economics, note the increased number of "interactive teaching methods" that have become available, but argue that the costs of learning and using those methods, uncertainty about their effects, and the overall reward structure of the economics profession limit faculty adoption of new teaching approaches. Reporting about the fourth annual survey of teaching methods in undergraduate economics classes, Watts and Schaur (2011) confirm the long-standing fact that lecture is the dominant teaching method for introductory economics. They also report that the survey of uses of alternative teaching methods shows that "shorter papers" are used in only nine percent of classes on average (but zero at the median). It seems potentially valuable, therefore to identify effective active-learning methods that have both low fixed and operational cost to instructors, including for those teaching larger classes.

I have used and report here about two relatively simple techniques to address these issues. Each involves a research and writing exercise that can be implemented with little up-front cost and scaled relatively easily for larger classes. One allows students to discover the importance (or limitations) of the assumptions in the standard competitive market model, some sources of monopoly power, and the use of monopoly power for price discrimination. The other asks students to apply the class information to a current applied policy issue related to the class. Because students have the opportunity to work as teams on the research project, the exercise also provides experience with professional cooperation on a work responsibility. Each project is described next.[1]

2. Price Variation Study and Analysis

A. Description and Implementation

Students are asked to investigate the degree of price variation for a single product or service in the local metropolitan area. They choose a uniform product or service, formulate a hypothesis about and explanation for the degree of price variation they expect to find for the selected

1 Although I use these approaches for introductory-level college classes, they seem sufficiently straightforward to make them appropriate for some high school classes.

product or service, collect prices for this product or service from at least ten different local sellers, and then analyze the data and report the results and conclusions in a brief research report. The standard competitive economic model predicts that there will be only one price for any given good or service because of the typical assumptions of identical goods, many buyers and sellers (each is a price taker), free entry and exit from the market, and perfect information. Therefore, consumers and firms are fully aware of all prices so that, as Mankiw (p. 66) notes, "… if he [a seller] charges more, buyers will make their purchases elsewhere." That is, if one firm charged a higher price than others, consumers would simply avoid that higher-priced firm. In contrast, one commonly observes a distribution of prices for similar or even identical products.

One way to think of this is that transaction costs are assumed to be zero in the standard model, as products are identical (so consumers do not have to measure quality or product differences) and price-taking behavior implies that price searching is unnecessary. In actual markets, price differences often are the result of what I deem transaction costs, including the cost of acquiring information (about prices or product quality) and the cost of transportation. The expectation is that there is greater opportunity for multiple prices the greater are the transaction costs. From another perspective, the transaction costs essentially create market (or price-setting) power for sellers, permitting sellers to take advantage of differences in price elasticity of demand and leading to some degree of price discrimination.

At the introductory level, I think there are at least three fundamental objectives of such an exercise. First, it permits students to see the importance of the assumptions underlying economic theory and pricing outcomes rather than just taking the theories about how markets operate as fact. Second, it helps emphasize that economics (even, or perhaps especially, at the introductory course level) is relevant beyond a requirement for a major or degree. Understanding basic economics is expected to be valuable in one's life independent of one's career choice, so the experience may motivate more interest in economics. Third, it encourages students to "do something" rather than just study something, and particularly to do something outside of the classroom or library. Introductory economics classes sometimes (maybe often) are perceived by students as "boring" or technical or abstract, so encouraging students to engage directly in an unusual manner may make the class inherently more interesting.

Several cautions are important both to make the exercise feasible and valuable for the students:

1. Obviously, the choice of product or service is crucial. Maintaining the product or service as uniform or identical as possible is important, as the goal is to examine price variation independent of product characteristics.[2] Suggestions include a specific brand or model of something (Duracell AA batteries, Crest toothpaste, or a 12-pack of Coke, for example) or relatively equivalent models of different brands (87 octane gasoline from different manufacturers, for instance), or a service (cup of coffee, haircut) with characteristics to make them equivalent. Students inform the instructor about the proposed product early in the semester, which permits comments and suggestions about particular aspects for the students to consider in their data collection or analysis and instructor intervention in the case of inappropriate or especially difficult choices.

2 Encouraging the students to examine prices for identical products seems closest to looking for exceptions to the perfectly competitive model. This will not always be possible, as some students may examine prices for different brands of a product or for products for which it is difficult to identify quality. The model of monopolistic competition may better characterize these latter cases. Such cases require students to correct for product differentiation, as discussed later in the paper.

2. In selecting a product, students are cautioned about trying to collect a price for a common- sized package to avoid observing second-degree price discrimination (quantity discounts).

3. Students are told that the nature of the product will influence the choice of which sellers to include in the price survey. Students typically include different types of sellers (large multi-product store vs. convenience store; chain store vs. privately owned store) and sellers in different locations (close to campus vs. an outlying mall).

4. Students are cautioned to note whether they collect a "regular" or "sale" price.[3]

One additional important aspect concerns the location of sellers to be surveyed.

Economically, the objective is to survey prices in a single "market," but of course the appropriate definition of market varies by product. One expects that consumers might consider a larger geographic market area for expensive products such as large appliances or cars compared to food or toiletries.[4] It is sometimes interesting and appropriate for students to include prices from two different locations in the area of the same retailer, for instance two different CVS stores or grocery stores of the same company (e.g., Kroger). Students discover whether these sellers adjust prices based on the characteristics of the local customers.[5]

Typically students collect price data from local sellers in one of three ways – visiting stores, telephoning stores, or finding prices for specific sellers from that store's web site. Students who elect to visit stores personally may walk, bicycle, use public transit or a ride-sharing service, or travel in their own or a friend's car. Obviously, the types of sellers to be surveyed and the nature of the local community determine the distance required to find ten sellers. In my experience, collecting price data has not been a major barrier for most students, and perhaps surprisingly, most sellers have been willing to provide price information over the phone (especially once they understand that the information is to be used for a student project). Online purchases raise another set of issues. Of course, online buying is becoming more common for many types of commodities, and in addition may be necessary to identify a sufficient number of sellers in some locations. Therefore, including online sellers may be appropriate in some cases. One additional factor that students should consider in including online sellers in the price survey is how shipping costs are handled, whether listed separately or included in the price, as transportation costs are not included in surveying local prices. Also, the time to receive the good may be different; by shopping locally one typically can receive the good immediately as opposed to some waiting period (several days to over a week) for on-line purchases. These factors may be important in trying to keep the purchases as equivalent as possible.[6]

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3 The purposes for this "caution" are to help insure as consistent a data sample as possible, to alert students to the idea of a loss-leader, and to alert students to the fact that some products go "on sale" on a regular basis. If sale prices are observed, students are encouraged to collect and report both the regular and sale prices.

4 Students sometimes ask if they can include sellers from their hometown in addition to those near the college. In most cases this will be inappropriate, as consumers are not expected to travel large distance for the products typically selected by students.

5 In the region near my university, there are two locations of a major multi-product retailer about five miles apart, one east of campus and the other west. Although students shop at both, the neighborhoods differ and the survey often shows that prices are different at these two locations.

6 Paying an upfront fee for "free" shipping or expedited delivery such as through Amazon Prime or a local on-line-ordering services (Kroger's ClickList) are further issues that students should or might want to consider if online sellers are included.

One issue is whether the choice of products to study should be controlled or limited in some way. In smaller classes, I sometimes impose a constraint that each group must examine prices for a different product and couple this with brief student presentations of the results to the entire class, although that clearly is not feasible for larger classes. This approach provides the entire class with an overall perspective about the pattern of price distributions and allows for discussion of the economic causes. Although this specific approach is not feasible for larger classes, I utilize some lecture time for a class discussion of what students observed and learned from this project.[7]

Three characteristics permit this approach to be used even for larger classes. First, students are instructed to analyze the data and report results and conclusions in a research report limited to no more than three pages total, including a summary table, discussion, and any references. The paper is to include discussion of the hypothesis, how the data were collected, the findings, and some basic economic explanation that seems consistent with the data. Second, students are allowed to decide whether to work on the project individually or in groups (usually two students together). For larger classes, requiring students to work in groups may be necessary. With sets of students working together, the number of reports to be read and reviewed is reduced. Third, we have had substantial success with a "triage" approach to reviewing and grading the reports. A teaching assistant first reads the reports and separates them into three categories, what might be denoted "excellent," "acceptable," and "questionable." This reduces the time required for the faculty member to review and determine a grade for the reports.

B. Evaluation

Projects are evaluated based on the research plan, data collection, quality of economic analysis, and the clarity and correctness of writing. Guidelines provided for the students, which are the primary basis for evaluation, emphasize the importance of (1) keeping products as identical as possible, (2) presenting the data in an appropriately organized table or chart, and (3) thinking carefully about what economic principles apply in explaining the observed price pattern. I review these guidelines several times in class during the semester, including discussion of specific cases, to help insure that the students are aware of expectations.

In using this project over some 20 years in both principles and intermediate microeconomics classes, students have selected a wide variety of products for price study. Candy bars, soft drinks, toiletries, batteries, and notebooks are among the most common and simple choices. Some students, however, have studied more challenging and informative cases. Students studying gasoline prices must deal with the issue of whether consumers believe that same octane gas of different brands is equivalent. Those studying services discover the difficulty for consumers in judging the quality of goods and services.

I try to deal with the issues of different brands or products where "identical" is not obvious initially when students report the intended product to study. If a student suggests studying the price for a can of chicken noodle soup, I respond by suggesting Campbell's chicken noodle – to avoid the price result from monopolistic competition in which one brand might command a higher price due to perceived product differentiation or reputation. Other cases are not as easy. If a student proposes studying the price for a cup of coffee (even a constant number of ounces), I ask whether they think that consumers believe a coffee from McDonald's is the same as

7 An alternative for larger classes is to utilize larger groups of students, with each group assigned a different product. The overall results could then be presented to the class or posted at the class web site. This seems a valuable adjustment, but not one that I have yet experimented with.

one from Starbucks. Students who do such a project are told to control for as many observable characteristics as possible, but then recognize the brand issue in the report. Services can be even more complicated. Students often select a haircut as the product to study, and again students are advised to identify as many characteristics as possible to avoid the issue of product differentiation.[8]

The most commonly observed errors or omissions in student reports are a failure to report the results in an organized way (a table organized in the order the products were surveyed rather than by price or type of seller or location or some other explanatory factors) and a confusion between pricing based on cost (economies of scale) as opposed to pricing based on demand (price discrimination).[9] The common price pattern that students discover is a persistent variation in price between types of sellers, especially what students identify as "large" vs. "small" stores. For instance, students typically find that prices are higher at such retailers as 7-Eleven and other convenience-type stores than at retail stores carrying a wider selection of products, such as Walmart or Target. Often students conclude this is the result of economies of scale, with lower marginal and average costs due to lower input prices for goods to be resold.

To help students understand the economic meaning of "large" vs. "small" and the implications for economies of scale, I present data to the class about the annual revenue of retailers (National Retail Federation 2017). In that way, students learn that firms such as CVS Caremark ($81 billion in 2017) and Walgreens ($79 billion in 2017) have annual sales that are equivalent to, or even exceed, those for retailers such as Costco ($86 billion in 2017) and Target ($69 billion in 2017).[10] Thus, a specific CVS store may be small in square footage or product diversity compared to a single Target location, but both firms are expected to have similar buying power in purchasing contracts for goods to be resold and in having an extensive supply chain or distribution structure.

Typically, a more accurate explanation for the observed price variation is price discrimination based on differences in price elasticity of demand. Consumers shopping at convenience stores or specialty retailers are exhibiting different behavior than when shopping at large multi-product stores.[11] Students must think about what might be the common feature of a CVS store, a locally owned "corner store," and a campus store in a residence hall. Students also discover how distance (transportation cost), location, and regulations are sources of market (or price-setting) power that permit sellers to have higher prices. For example, students discover that prices for products from on-campus stores, vending machines, and at theaters or sports venues commonly are substantially higher than at other retailers, including convenience stores. To assist students in thinking through possible explanations for the observed price structure, I often ask students to think of two questions: (1) "Do you think that consumers know that these price differences exist? (2) If they know prices are higher at certain sellers, why does anyone purchase from those

8 For a haircut, characteristics might include appointment vs. walk in, wash or not, chain vs. independent business, the physical nature of the shop, and so on.

9 Often when one thinks of "research" in an economics class, the idea is for students to undertake some type of appropriate regression analysis. But for introductory classes, students may not yet have the statistical or econometric knowledge to do this. This project permits such students to get a sense of data collection and research in economics short of the type of work that might be expected in more advanced classes. Still, I have had students, particularly in honors introductory microeconomics, who have some knowledge of statistics and include regression analysis in their reports.

10 Of course, Walmart is in a different universe.

11 In preparing for the project, students might be encouraged to review a discussion of third-degree price discrimination included in most introductory microeconomics textbooks (for instance in Chapter 15 of the Mankiw text that I use).

sellers anyway?" The first question raises the issue of whether and when consumers perform price searches. Obviously, the benefit from surveying prices differs due to the amount spent (price) and the repetitive nature of purchases.[12] The second question is intended to encourage students to think of the costs as opposed to the benefits of price searching or shopping, including their own personal experiences of purchasing from higher-priced sellers. Many college students commonly use on-campus stores that often have higher prices (similar to convenience stores) than local grocery or big-box sellers.

Because I view this exercise primarily as a learning rather than evaluation mechanism, the share of the course grade I allocate to the project is relatively low (typically less than 10 percent), and variation in scores also is kept relatively small, *ex post*. Of course, students do not know about the narrow variation *ex ante*, as the grading criteria for the class state simply that a student may earn between 0 and X points through this project. Even if X is only 10 percent of the total possible points in the class, my experience is that students see this as an opportunity to enhance the class grade beyond and differently than through exams.[13]

C. Learning Outcome

Two positive examples of student work in a recent introductory microeconomics class illustrate the opportunities that this project provides. One student collected prices for a gallon of 2-percent milk and found a median price of $2.49, with a range from $2.21 to $3.49. This student described the pattern as "large" stores having lower prices than "small" stores, where "small" stores were convenience stores and others with limited product coverage. This student concluded, "Firms exist to make money and if price discrimination will maximize their profits then they will do so accordingly. These firms can price discriminate based on the size of their store due to the convenience factor of a small store versus a large store."

Another student in the same class explored prices of a standard brand and size deodorant. The result showed price variation from $2.49 to $4.29, with one instance of a price of $4.39 for a same deodorant at half the size of the others. As one might expect, the prices at convenience stores were higher than those at large grocery stores and supermarkets. This student offered the following explanation: "This pattern of prices exists because of the differing price elasticity of demand of the consumers. … The consumers that shop at supermarkets … have a higher price elasticity of demand, and consumers that shop at convenience stores have a lower price elasticity of demand."

To me, the value of this (or a similar) exercise in introductory economics is more about learning and motivation of interest than an evaluation of knowledge. This is comparable to how I see problem assignments (a learning tool) as opposed to exams (which may have a learning component, but are primarily evaluative). I have not conducted any rigorous analysis of the effect of this research and writing exercise on student academic performance.

However, the experience of several recent classes may be indicative of the fact that this type of graded assignment can provide a valuable alternative to exams for some students. Although,

12 Griffith et al., 2009, provide evidence about the benefits of shopping and price searches.

13 As illustration, in a recent class students could earn up to 30 points through this exercise out of a total possible points of 400 in the class. By contrast, problem assignments (another learning tool) were worth 50 points. The actual research project scores were 27, 25, or 23 points, which corresponded to 4.0, 3.5, and 3.0 grades, given the announced grade standards for this class.

not surprisingly, there is a positive correlation between scores on the final exam and the research report, the correlation is not strong (less than 0.2). Of the students who scored among the bottom 25 percent on the final exam, one-quarter had earned the highest score on the research report. This suggests either that some students perform better on written research assignments than exams or that students who find themselves not doing as well on exams as hoped apply extra effort to do well on the research project. In either case, this simple research exercise serves to narrow the grade distribution.[14]

3. Opinion Editorial

A. Description and Implementation

For this assignment, students, working in two-person teams, prepare a 500 to 600 word op-ed (opinion) article on some topic related to the course. Students are reminded (or informed) that editorial pieces take the form of an essay or thesis using arguments and facts to promote a point of view. Thus, students are told that their op-ed piece articles should be more than belief; they should reflect "informed opinion." Guidelines and samples are provided, and part of one class period is devoted to discussing the assignment, especially important given that students usually do not have experience writing this type of article. Students inform the instructor relatively early in the semester about the topic they propose, permitting the instructor to react with suggestions, references, or, in some cases, outright rejection if the topic falls outside of the course coverage.

Because writing opinion briefs is substantially different than a traditional research paper and something that students typically have not experienced, I have learned that specific guidelines are helpful for successful results. The guidelines provided are:

1. Promote a point of view; have a clearly stated point of view and a recommendation for action or change (for or against; good or bad; do more or do less; change a law or policy; institute new procedures or rules; not just facts).
2. Present informed opinion, supported by appropriate facts or research findings (use facts or research that supports your point of view).
3. Do your own work and writing (may use published work as background information, but your article must be yours alone).
4. Write so that your position is well presented (well written, well argued, organized, cogent and brief, with correct grammar and spelling).
5. Be convincing (your goal is to convince someone – government officials, business owners, college administrators, or the public – to change something. How convincing is the overall article?).

For my introductory level class, I perceive three potential objectives of such an opinion article exercise. First, it permits students to learn more detail about one topic in the course, and a topic they select because of their own interest. Second, if students are allowed to select the topic (within guidelines), then the assignment has the potential to stimulate interest and motivation

14 Because the research project covers only a small component of the overall introductory microeconomics course, one would not expect it to influence final exam scores substantially.

in the overall topic of the course. Essentially, students become active participants in the course. Last, students get experience with a form of writing that is different, effectively becoming advocates as opposed to observers, which may encourage students to challenge the conventional positions presented in lecture or the text.

I have used this exercise for a general education class (no prerequisites) that covers the economics of the sports industry (both professional and college). Both basic economic concepts (demand and supply, price elasticity) and some relatively sophisticated topics (value of the marginal product, monopoly and monopsony price discrimination, bilateral monopoly and bargaining) are covered in this class. In addition, of course, substantial facts about prices, demand, league and NCAA rules, legal constraints, and tax and other public policies are included. Again, because of typical student unfamiliarity with opinion articles and the topics in the course, as well, I provide in the guidelines both a list of possible topics and a set of sample professional op-eds and sources (which are posted or identified at the class web site).[15]

I insist that topics are related to business aspects of sports (although some may not be directly covered in the course) rather than issues about sports competition – unless the students can make a connection between a competitive issue and economic impact (revenue, profits, salaries). For example, students might want to write that the college football playoff should be expanded, which would be an acceptable topic if the argument is that it would generate more revenue for schools, student-athletes, broadcasters, and so on, but not acceptable if the argument is that it would be fun or fairer in identifying a champion or whatever. I try to keep the focus on the course topic of the *business aspects* of sports. There are many ways to approach this, of course, including identifying a single issue for everyone to write about (some on one side and some on the other) or limiting topics to issues directly of local interest, such as sports at that college (university subsidy of sports, athletic vs. academic facilities, broadcasting contract, etc.) or an issue related to a local professional team (stadium subsidies, local economic benefits, and so on).[16]

Given the focus of the course, the topics ultimately selected by students for their op-ed articles are not surprising. In 10+ years of experience with this course, the two most common op-ed topics selected by students are (1) whether college athletes should be compensated more than they currently are (athletic scholarships are sufficient or college athletes should be compensated based on value) and (2) whether professional athletes' salaries are excessively high (overpaid relative to other workers or paid appropriately compared to value and other entertainers). Such issues correspond to labor market and income distribution topics typically covered in introductory microeconomics classes.

Although these topics have dominated student response in this class, a number of other topics basic to introductory economics also have been examined. These include whether ticket prices are "too high," whether and how price discrimination should be applied in ticket pricing, whether secondary markets (ticket reselling) improve consumer welfare, whether subsidies for professional sports (including facilities) are appropriate, whether gambling on sporting events should continue to be restricted, whether revenue sharing and other attempts to create competitive balance are desirable, and whether colleges should seek to impose a limit on coaches' salaries, among many others.

15 Zimbalist (2016) is one example. Issues are covered in the texts by Leeds and von Allmen (2014) and by Fort (2011).

16 One reviewer suggests writing about a topic directly affecting the campus and intended for publication in a campus or local newspaper.

B. Evaluation

I have found an additional approach to grading works especially well for this type of assignment. In addition to having students work in groups and having a teaching assistant preview the reports, the op-ed writing assignment is graded on a credit/no-credit basis. Each fully completed op-ed piece that meets the guidelines and is submitted on time receives full credit. Students who do not receive credit for the first submission are provided the opportunity to revise and resubmit the article one time. My experience is that in a class of about 200 students (or 100 articles), only about 10 to 15 op-eds each year fail to meet the guidelines initially and require feedback, revision, and resubmission.

This approach seems appropriate, especially for a general education class, both because students usually are inexperienced with this type of writing related to economics and because there is no single "correct" answer to each topic. Indeed, the students are informed that whether the professor agrees with your position and recommendations (for or against) does not matter for evaluation. In addition, credit/no-credit grading seems appropriate because the objective of this project is to be an educational component of the class rather than an evaluation component. In essence, the value is simply in the students doing it.[17]

C. Learning Outcome

In a recent class, one student group wrote a well-reasoned op-ed titled "Student-Athletes Deserve to Be Paid," citing evidence that top college football and basketball players have a market value of at least $100,000, that colleges and the NCAA generate revenue from players' popularity and images, that graduation rates and the probability of professional careers are low, and additional earning options during college are limited. They concluded, "Each college athlete is well deserving of earning a salary from the NCAA, because each team is only worth as much as each player brings to the university."

In "Why MLB Should Have a Salary Cap," a student group argued the absence of a salary cap in MLB has reduced competitive balance in the league unlike the experience in other leagues with caps, especially the NFL and NHL. In addition, they present evidence that the MLB "competitive balance tax" has not been effective in assisting small-market teams. They concluded, "MLB needs to implement a salary cap system to increase balance, increase team value, and keep people interested in the game of baseball."

It seems entirely possible to use the same exercise in an introductory microeconomics or macroeconomics class, although with different topics, of course. For microeconomics, one might imagine students writing opinion articles about efforts to maintain competition (or discourage monopoly) or control prices ($15 minimum wage) or collect Pigouvian taxes (carbon tax) or limit trade (tariffs). For macroeconomics, potential topics might include inflation targets or the tradeoff between inflation and employment or the incentives to encourage economic growth.

My experience with the introductory economics of sports class suggests to me that students enjoy this project particularly because it is different than most college writing exercises, focusing on formulating and marshaling arguments about a clear opinion as opposed to re-

17 In the general education class I teach, the opinion article score accounts for about 10 percent of the course grade, about the same as attendance and participation (i-clicker questions).

viewing issues or research results. I suspect that other instructors use editorial writing as well, and it might be helpful if they are willing to share their experiences. Nationally, the annual Student Editorial Contest conducted by the *New York Times* (although focused on high school students) is illustrative of both the potential and attractiveness of this approach.[18]

4. Conclusions and Observations

At the introductory class level, the goal of a research and writing exercise should, in my judgment, be less about the substance or quality of research and more about students having the experience of doing it. In completing these projects, students develop a more comprehensive understanding of one topic of the course, learn the basics of collecting and analyzing information, describe economic analysis or defend a policy position, and gain experience working in a group.

Most examples, discussion, and research about incorporating active learning mechanisms in economics classes concern upper-level classes or capstone (thesis) projects. Cases or examples in the literature that closely resemble those discussed in this paper, for introductory economics classes or general education classes, are less common. However, the existing literature regarding research and writing in economics provides some context and guidance for interpreting and evaluating the ideas presented in this paper.

Several papers (especially Dowd, Connolly, Thompson, & Reynolds 2015 and Simpson & Carroll, 1999) discuss how writing instruction can be integrated with economics classes, sometimes with dedicated writing staff or associated writing seminars. Although those approaches go far beyond the simple and brief mechanisms presented here, there is some suggestion that even brief, basic research or writing assignments can provide benefit. Simpson and Carroll (1999), discussing writing assignments used in economics classes at Davidson College, report that op-ed columns were used for environmental economics and labor economics classes. A survey of economics majors found that short position, case study, or op-ed papers were rated best by alumni for "Helpfulness in preparing for the writing requirements of additional degree programs" and "Helpfulness in preparing for the writing requirements of primary occupation." The authors conclude, "Brief assignments geared toward different audiences, such as analyses of readings, opinion pieces, and cover letters, are more helpful for professional life" (p. 406). In contrast, longer research papers with quantitative analysis were judged to be slightly better for learning economic theories and models.

Therefore, the type of short and relatively easily integrated projects described in this paper may be particularly appropriate and valuable for introductory classes and classes that include many students for whom economics is not the major area. Longer quantitative papers may be most appropriate for intermediate level economic theory and upper-level field courses.

Considering student research at the introductory class level, examples and evaluation of in-class experiments seem substantially more common in the literature than simple direct research. For instance, Aguiló, Sard, and Tugores (2016) describe a classroom experiment concerning monopoly price discrimination designed to identify the different types of discrimination and to understand the effects of each type of price discrimination on economic welfare. The price variation study described above also leads to students discovering different forms of

18 See https://www.nytimes.com/2017/03/02/learning/our-fourth-annual-student-editorial-contest-write-about-an-issue-that-matters-to-you.html.

price discrimination and the conditions that permit such pricing, but outside of the classroom as opposed to an in-class demonstration. The price variation project has the additional benefit of including a brief writing exercise.

On the other hand, Castilla (2014), citing Singh and Russo (2013), notes the value of developing research projects in order to get students more actively involved in the knowledge generation process. She describes a research project for an undergraduate introduction to behavioral economics course. Students conduct a field experiment on campus to test a theory of behavioral economics. This case is similar to the price variation project, as both involve local or on-campus hands-on research, are used in an introductory course, and are intended for students to "see" how an economic principle or theory operates in practice.

One potential difficulty with class writing assignments is avoiding plagiarism or some other form of academic dishonesty, which is always a concern. However, I believe, and experience suggests, that the nature of the projects presented here makes this less of a concern. For the price variation research project, students must collect current local data, which almost requires independent action. In more than 20 years of using this project, I observed only a couple of cases in which students "faked' the data, essentially reporting a distribution of prices that was just made up. Faking the data collection is difficult for a number of reasons, including the fact that (especially in large classes) more than one student may be studying the same product, a set of products is common from year-to-year so that the instructor becomes familiar with many price patterns, and because the data are collected locally the instructor is likely to be familiar with many price patterns from personal experience. In addition, students seem to like this experience – collecting real market information locally – rather than doing library research. Indeed, some students use the project to study price differences for a product they buy regularly or are planning to purchase.

For the op-ed project, monitoring potential plagiarism is a bit more difficult. There are numerous op-ed columns available in print and online regarding many sports business issues. Students are told that they may use others' articles for ideas and supporting information, but the writing of their article must be their own. So, the challenge for the instructor is distinguishing student writing from professional work and identifying cases in which students have borrowed too closely from others' published work. In addition to the electronic plagiarism tools available, the fact that a few topics tend to be commonly selected by the students provides another option. A Google search for the five common topics reveals the most recent columns about those topics. Reviewing those before reading the student papers provides a set of case and language comparisons to watch for.

In addition to making these projects feasible for larger classes, having the students work in groups may provide an educational benefit, as well. It seems well understood that a "team" approach to work is becoming more common in many (and perhaps most) professional occupations. Through these projects, students experience both the value and challenges of planning and coordinating the effort of multiple people toward a single objective.[19]

Group work presents other concerns, of course. How groups are formed might create concerns that selection has an influence on performance. Also, some students might be tempted to rely on other group members to complete the work, trying to become free riders. In my use of the price dispersion study, students can choose whether to work alone or with another

19 Although I have used groups of two students, there would seem to be no magic in that number. It simply has been appropriate for the size of my classes. One expects that larger groups could work as well for very large enrollment classes.

mutually chosen class member. For the opinion editorial in the sports economics class, students work in groups of two – either that they select or that I assign alphabetically. Before the students' decisions, I discuss in class the potential costs and benefits of each approach (alone vs. group or self-selected group vs. assigned group), including the difficulty of working with "a friend."[20] The students are also informed that (in the experience of previous classes) this choice has no effect on performance, on average. There is no statistical difference in assignment grade whether students work alone or in a group for the price study or in a self-selected group as opposed to an assigned one for the opinion editorial.

Similarly, in my experience free riding has been a minor issue (admittedly for reasons I don't know). In each class there typically are only a few cases (well less than five percent) in which students contact me about a partner who is not communicating or contributing, which represent only the most egregious cases of free riding of course. My first step is to contact the student who is alleged not to be participating to try to resolve the issue, which seems to work about half of the time. For the other cases, the students are instructed to complete the assignment individually. Of course, even this potential problem is part of the learning, as a similar issue may arise later in a work setting.

In summary, these two cases provide relatively straightforward and scalable options for incorporating research and writing about economics issues into introductory-level classes in which students may not have substantial economics knowledge. These experiences enhance both student interest in the course and understanding of the topics covered in the course. In fact, students seem to enjoy doing these projects rather than seeing them as additional work in the class. Simple mechanisms reduce both implementation and evaluation cost to the instructor, and plagiarism has not been a serious problem.

I hope both that other instructors with similar practices might report about those methods and that instructors who try these two methods will find ways to make them even more valuable and productive teaching tools. In addition, these types of writing projects may provide data that can be used subsequently for rigorous analysis of an effect on either learning or course appreciation, although I have not conducted such careful statistical work myself. However, the results of student class evaluations suggest, as noted previously, that students view these projects positively.

20 In one dramatic case, a couple agreed at the start of the semester to work together, but were no longer a couple by the time the research and project were due. Each was allowed to submit an individual assignment.

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