International Review of Economics Education 24 (2017) 36–49

Contents lists available at ScienceDirect

International Review of Economics Education

journal homepage: www.elsevier.com/locate/iree

An introductory microeconomics in-class experiment to reinforce the marginal utility/price maximization rule and the integration of modern theory

David G. Raboy, Associate Professor of Economics (Adjunct) Senior Policy Fellow and Affiliate Associate Professor[a,b,*]

[a] Northern Virginia Community College—Manassas Campus, 10950 Campus Drive, Manassas, VA 20109, USA
[b] Schar School of Policy and Government, George Mason University, 3351 Fairfax Drive, Arlington, VA 22201, USA

ARTICLE INFO

Article history:
Received 5 August 2016
Received in revised form 3 October 2016
Accepted 15 October 2016
Available online 18 October 2016

JEL Codes:
A22
C91
D03
D11

Keywords:
Experimental economics
Modern microeconomics
Principles classes
Alternative pedagogy

ABSTRACT

This paper presents an in-class experiment used as a teaching tool in an introductory microeconomics class at the undergraduate college level. It is directed at a critical but challenging concept for principles students—constrained utility maximization and a methodology to intuit preferences. The experimental project is nested in the literature pertaining to the current transition in microeconomic theory motivated by contributions from behavioral economics and transactions-cost economics, among other elements; modern pedagogical models; experimental economics; and experiments as in-classroom teaching tools. While not dispositive as to the general efficacy of in-class experiments, the paper provides an example of an alternative instructional approach which is helpful to principles students under strictly defined protocols. The benefits to students include heightened understanding of the core subject topic, greater interest in the subject matter, a closer connection to real-world economics, and enhanced critical thinking capabilities.
© 2016 Elsevier Ltd. All rights reserved.

1. Introduction

This paper describes an experiment used as a teaching tool in an introductory microeconomics class at the undergraduate college level. Benedict and Hoag (2002, 31) present a paper to investigate, "why students are apprehensive about their principles of economics classes." Citing weaknesses in math, the authors opine, "alternative teaching methodologies may reduce the level of apprehension in the introductory courses" (Benedict and Hoag, 2002, 31).

One such alternative method is the use of experimental economics. However, the general efficacy of this approach is not settled (Cartwright and Stepanova, 2012; Durham et al., 2007; Walker, 1987). The experiment described in this paper draws on the literature pertaining to transitions in microeconomic theory, general pedagogical approaches, experimental economics, and experiments as in-classroom teaching tools.

* Correspondence to: Schar School of Policy and Government, George Mason University, 3351 Fairfax Drive, Arlington VA 22201 USA.
E-mail addresses: draboy@nvcc.edu, draboy@gmu.edu (D.G. Raboy).

http://dx.doi.org/10.1016/j.iree.2016.10.003
1477-3880/© 2016 Elsevier Ltd. All rights reserved.

Table 1
Example of Systematic Student Errors on Constrained Optimization.

Test question:
10. A consumer with a *fixed income* will maximize utility when each good is purchased in amounts such that the:
A. Total utility is the same for each good.
B. Marginal utility of each good is maximized.
C.Marginal utility per dollar spent is the same for all goods. (Correct answer)
D. Marginal utility per dollar spent is maximized for each good.
[Emphasis added]

1.1. Motivation for the paper

The direct motivation for the experimental approach resulted from possible student confusion about a critical consumer constrained optimization concept, as evidenced by systematic errors on an early semester test on consumer-choice and utility-maximization theory in a course taught by this author. Table 1 provides an example of a question from the relevant test that most students answered incorrectly.[1]

Answer C. is correct, but most students answered B., with some choosing A. or D. This may indicate that students were not certain about guidelines relating to constrained utility maximization. However, as pointed out by one observer, C. is at least poorly worded and in fact is also incorrect. The phrase "per dollar spent" refers to expenditure, not price, and therefore does not reflect the proper theoretical constrained-utility-maximization rule This imprecise wording exists in the textbook in some instances (McConnell et al., 2015, 156) and in others is stated correctly (McConnell et al., 2015, 157–158). The reference to "fixed income" in the test question identified a constrained-optimization context. The crucial concept for maximization in this context is that for all goods $i = 1$ to N, $MU_i/P_i = MU_{j\neq i}/P_{j\neq i}$ where MU_i is marginal utility for good i, and P_i is the price of good i. Despite the previously cited poor wording, this concept was stressed in the examples in the textbook (McConnell et al., 2015, 152–153), in lectures, and in instructions regarding experimental design.[2] Yet confusion remained.

Typically this core optimization principle is illustrated via two-good examples as the calculations are less complex. There is nothing wrong with using a two good example—any extension of the number of goods would only serve to add unjustified complexity and increase student confusion. This is true of the instant course with no math prerequisite (described in Section 1.3), but also in higher level courses where calculus approaches such as use of Lagrangian multipliers are utilized, and adding goods would increase the number of equations to the problem, requiring linear-algebra techniques for example solution. Indeed, the constrained-maximization rule delineated in the previous paragraph is derived by a Lagrangian-multiplier process. The experimental motivation, therefore, appropriately finds its application in a two-good setting.

The second motivation for the experiment was the insight that student confusion might have been exacerbated by the transitional nature of modern microeconomics due to contributions from behavioral economics and transactions-cost economics, among other rudiments. An introductory course, to be relevant and credible, must address this attribute of modern microeconomics and consumer theory. This is discussed in detail in Sub-Sections 2.1 and 2.1.2. A possible contributor to what appears to be math-related student uncertainty regarding the constrained-optimization rule may also reflect reaction to the seeming rigidity of the rule. In fact, the rule does not depend on neoclassical descriptions of consumer preference structures and would still obtain under modern, more flexible, views of preferences. An in-classroom experiment can help address this dichotomy.

The third motivation for the in-class experiment is that the transitional nature of microeconomics affords a distinctive opportunity for the development of analytical and creative thinking in students, in contrast to learning by rote. This is also described in Sub-Sections 2.1 and 2.1.2.

1.2. Background on the school

It is informative to consider the subject experiment in the context of the characteristics of the college where the experiment was used. The college of interest is the Northern Virginia Community College (NOVA). NOVA is the second largest community college in the United States (NOVA, 2016a). It is also highly ranked among community colleges and other non-university colleges.[3]

Most important for this paper, however, is the series of guaranteed-admission agreements (GAA) that NOVA has with all of the flagship universities in the Commonwealth of Virginia Collegiate system, as well as similar agreements with other

[1] Note that the test question came directly from a McGraw-Hill Connect™ on-line test bank associated with the textbook, McConnell et al. (2015).
[2] This concept was also stressed in the midterm research paper assignment. For copies of the various examples of all of these foci please contact the author.
[3] As measured by one often-cited source NOVA is ranked as the third best community college overall in the United States and number one in the state of Virginia and the southern region of the United States. NOVA does not have an economics major; that is subsumed primarily within the business program. NOVA is ranked as the second best business community college in the United States, and number one in both Virginia and the southern region (Best-Community-Colleges.com, 2016). As to faculty, based on student evaluations from one of several sources, NOVA is highly rated among collegiate institutions (RateMyTeachers.com, 2016). This source may be prone to adverse-selection bias.

Download English Version:

https://daneshyari.com/en/article/4938783

Download Persian Version:

https://daneshyari.com/article/4938783

Daneshyari.com