IT IS TIME TO CHANGE OUR TRADITIONAL APPROACH OF TEACHING INTRODUCTORY ECONOMICS

Dr. Sergei Peregonchuk
The National University of Samoa, Faculty of Business and Entrepreneurship (FOBE)

Abstract
The goal of my paper is to grab attention of the economic educators' community to the urgent need of a radical switch from the traditional way of teaching Introductory Economics. During my broad academic experience of teaching this subject I had come across numerous evidences that the current method of teaching with its emphasis on technique has failed in many important aspects.

The Economic Way of Thinking based on the classical work of Paul Heyne offers totally different approach of teaching Introductory Economics. It concentrates on a few elementary concepts that help students think more coherently about the wide range of social and economic problems they face in the real world.

The paper focuses on a specific aspect of the application of one of these principles (cost – benefit) to the problem of optimal allocation of resources.

Keywords: Economic education, teaching introductory economics, undergraduate curriculum, cost-benefit principle, optimal allocation of resources

1. The Economic Way of Thinking as alternative way of teaching Introductory Economics

The paper is about reasons why we need to change dramatically our traditional approach of teaching Introductory Economics. Numerous evidences suggest that the current method of teaching with emphasis on technique has failed in two very important aspects. First of all, students at all levels show the lack of understanding of Economics. Secondly, Economics profession seems to have very little influence on the social media, parliament, courts. In general, we have failed in disseminating the essential, powerful truths of our discipline. If students do not learn the fundamental concepts of Economics and have no idea how to apply these concepts to the real world problems it is time to change our current approach to teaching Introductory Economics.

The traditional method that still dominates the field of Economics does the emphasis on technique. As you flip through the pages of the classic textbooks written by G.Mankiv, P.Krugman, R.Lipsey, M.Parkin you will see graphs or mathematical formulas practically on every page. At the end of such a course the students learn how to calculate equilibrium prices and quantities, different types of elasticities and multipliers, how to draw indifference curves. But they have no idea how to apply any of the concepts to real world problems.

The Economic Way of Thinking as an alternative to the traditional method of teaching Introductory Economics concentrates on a few elementary concepts that students could usually figure out for themselves. These concepts will help them think more coherently about the wide range of social and economic problems they face in the real world. The teaching of a concept must take place in the context of a problem. We emphasize the two-steps approach. In step one we identify a problem. In step two we say:"Here is how economists think about the problem. We need to employ such and such concepts".

One of the most fundamental concepts that many of us want our beginning students to master is the cost-benefit principle. Perhaps, only few who teach Introductory Economics would disagree that the cost-benefit principle is the pillar of Microeconomics. But, surprisingly, the classic textbooks do not discuss this fundamental concept at all. As far as my teaching experience goes, the only textbook that dedicates the whole chapter to the cost-benefit principle is Frank/ Bernanke's "Principle of Microeconomics ". I have been using this textbook for many years and I really appreciated the way how this concept was presented to the students.

2. Application of the cost - benefit principle to the optimal allocation of resources: general algorithm

Due to my personal persuasion about the value of the cost-benefit principle to the beginning economics students I have made a genuine contribution to the methodology of teaching it. I was able to design a general algorithm of how to apply the cost-benefit principle to the problem of optimal allocation of resources. Typically, I use this algorithm in two chapters of my Introductory Economics course – " Basics of the Cost – Benefit principle" and "Demand : The Benefit Side of the Market". Let me invite you to my Introductory Economics class and share with you that stuff.

First of all, students are introduced to the general idea behind the algorithm. It consists of the following steps:

Step 1. Pick up RANDOMLY any allocation A.

Step 2. Look forward to another allocation B reallocating your resources just a little bit.

Step 3. Standing on allocation A ask yourself a question :" Should I move from A to B? "

To answer the question you have to compare two things: Additional Benefits from " Moving from A to B" with Additional Costs of "Moving from A to B".

Step 4. Let us assume that the Additional Benefits from " Moving from A to B" is bigger than Additional Costs of "Moving from A to B". In this case the cost – benefit principle advises you to move from A to B.

Now you are standing on allocation B and you look forward to another allocation C reallocating your resources in the same direction as you did in step 2.

Step 5.Standing on allocation B ask yourself a question :

" Should I move from B to C ? "

To answer the question you have to compare two things: Additional Benefits from " Moving from B to C" with Additional Costs of "Moving from B to C ".

Step 6. Let us assume that the Additional Benefits from " Moving from B to C" is bigger than Additional Costs of "Moving from B to C". In this case the cost – benefit principle advises you to move from B to C.

And so on….. If moving from allocation X to allocation Y you find out that Additional Benefits from " Moving from X to Y " is less than Additional Costs of "Moving from A to B" Then you have arrived at the optimal allocation which is X.

Let us demonstrate how this algorithm works solving the following two problems:

2.1 Application of the general algorithm (Problem 1)

Assume you can either work as an Economics tutor on campus for **$16 per hour** or work in your own business making university t-shirts. Your working day is 8 hours. You must decide how much time each day to spend on each activity. Use the information in the table below to determine how you will allocate your time between two activities ifyou earn **$5 for each t-shirt**.

Table 1: Productivity in making t-shirts

Hours per day	Quantity of t-shirts
1	6
2	11
3	15
4	18
5	21
6	23
7	25
8	26

Source: own data

Table 1 above presents information about number of t-shirts your business make in different time. For example, if you work 4 hours doing your business you will make 18 t-shirts.

Now we are going to apply the general algorithm specified above to this specific problem:

Step 1. Pick up RANDOMLY any allocation A :

Assume that initially you are thinking to work **1 hour** making t-shirts and the rest of your time – **7 hours**- dedicate to tutoring.

Thus, **allocation A : [1 hour making t-shirts,7 hours tutoring]**

Step 2. Look forward to another **allocation B** reallocating your resources just a little bit:

Now, you want to reallocate 1 hour from "tutoring" to "making t-shirts"

Thus, **allocation B : [2hours making t-shirts, 6 hours tutoring]**

Step 3. Standing on allocation A you ask yourself a question :

" **Should I move from A to B?** " To answer the question you have to compare two things: Additional Benefits from " Moving from A to B" with Additional Costs of "Moving from A to B". Additional Benefits from " Moving from A to B" are associated with extra (additional) hour you spend at your business which will bring you an Additional Revenue. Therefore, Additional Benefits from " Moving from A to B" = Total Revenue you generate from making t-shirts for 2 hours– Total Revenue you generate from making t-shirts for 1 hour= 11*$5 – 6*$5=$55-$30= $ 25. That extra (additional) hour spent on making t-shirts will bring you extra $25 in total revenue. But when you reallocate one hour from "tutoring" to "making t-shirts" you lose also your revenue associated with that move. Therefore, Additional Costs of "Moving from A to B" are associated with the Loss of your Revenue as a tutor - $16.

Step 4. As we see, Additional Benefits from " Moving from A to B" = $25 are bigger than Additional Costs of "Moving from A to B" = $16. Thus, the cost – benefit principle advises you to **move from A to B**.

Now you are standing on **allocation B**[2 hours making t-shirts, 6 hours tutoring]and you are looking at **allocation C** [3 hours making t-shirts, 5 hours tutoring]

Step 5.You are asking yourself a question :" **Should I move from B to C?** "

To answer the question you have to compare two things:

Additional Benefits from " Moving from B to C" with Additional Costs of "Moving from B to C". Additional Benefits from " Moving from B to C" are associated extra

(additional) hour you spend at your business which will bring you an Additional Revenue. Therefore, Additional Benefits from " Moving from B to C" = Total Revenue you generate from making t-shirts for 3 hours– Total Revenue you generate from making t-shirts for 2 hours= 15*$5 – 11*$5=$ 75-$55 =$ 20. That extra(additional) hour spent on making t-shirts will bring you extra $20 in total revenue. But when you reallocate one hour from "tutoring" to "making t-shirts" you lose also your revenue associated with that move. Therefore, Additional Costs of "Moving from A to B" are associated with the Loss of your Revenue as a tutor - $16.

Step 6. As we see, Additional Benefits from " Moving from B to C" = $20 are bigger than Additional Costs of "Moving from B to C" =$16. Thus, the cost – benefit principle advises you to move from B to C.

Now you are standing on allocation C [3 hours making t-shirts, 5 hours tutoring]

and you are looking at **allocation D [4 hours making t-shirts, 4 hours tutoring]**

Step 7.You are asking yourself a question :" **Should I move from C to D?** "

To answer the question you have to compare two things:

Additional Benefits from " Moving from C to D " with Additional Costs of "Moving from C to D". Additional Benefits from " Moving from C to D" are associated extra

(additional) hour you spend at your business which will bring you an Additional Revenue. Therefore, Additional Benefits from " Moving from C to D" = Total Revenue you generate from making t-shirts for 4 hours– Total Revenue you generate from making t-shirts for 3 hours = 18*$5 – 15*$5=$ 90-$75 =$ 15. That extra(additional) hour spent on making t-shirts will bring you extra $15 in total revenue. But when you reallocate one hour from "tutoring" to "making t-shirts" you lose also your revenue associated with that move. Therefore, Additional Costs of "Moving from A to B" are associated with the Loss of your Revenue as a tutor - $16.

Step 8. As we see, Additional Benefits from " Moving from C to D" = $15 are less than Additional Costs of "Moving from C to D" =$16. Thus, the cost – benefit principle does not advise you to move from C to D.

Therefore, **the optimal allocation is C**[3 hours making t-shirts, 5 hours tutoring]. If you spend 3 hours making t-shirts and 5 hours helping students to grasp the essence of the cost – benefit principle youwill maximize your total revenue.

2.2Application of the general algorithm (Problem 2)

To earn extra money in the summer, you grow tomatoes and sell them at the farmers' market for 30 cents per kilogram. By adding compost to your garden, you can increase your yield. If compost costs $1 per kilogram and your goal is to make as much money as possible, how many kilograms of compost will you add?

Table 2: Tomatoes yield with respect to compost

Kilogramsof compost	Kilogramsof tomatoes
0	100.0
1	120.0
2	125.0
3	128.0
4	130.0
5	131.0
6	131.5

Source: FRANK , R.; BERNANKE , B. Principles of Microeconomics. 2nd ed. Mc-Graw Hill Education, Ch.1, p.20.

The table above presents information about relationship between the amount of compost added to tomatoes' field and the corresponding yield.

Let us apply the general algorithm to this specific problem:

Step 1. Pick up RANDOMLY any allocation A :

Assume that typically you do not add any compost and now you are thinking to add the 1st kilogram.

Thus, **allocation A : [1 kg of compost]**

Step 2. Look forward to another **allocation B** reallocating your resources just a little bit-you want to add one more kg of compost.

Thus, **allocation B : [2kg of compost]**

Step 3. Standing on allocation A you ask yourself a question :

" **Should I move from A to B?** " To answer the question you have to compare two things: Additional Benefits from " Moving from A to B" with Additional Costs of "Moving from A to B". Additional Benefits from " Moving from A to B" are associated with extra (additional) yield of tomatoes due to extra kg of compost. Selling that extra yield of tomatoes on the market will bring you an Additional Revenue. Therefore, Additional Benefits from " Moving from A to B" = Total Revenue you generate from adding 2 kg of compost – Total Revenue you generate from adding 1 kg of compost :

$$120*\$0.30 – 100*\$0.30= \$6.00.$$

The 2nd additional kg of compost will bring you extra \$6 in total revenue. But the extra kg of compost will cost you \$1.00

Step 4. As we see, Additional Benefits from " Moving from A to B" = \$6 are bigger than Additional Costs of "Moving from A to B" = \$1.00. Thus, the cost – benefit principle advises you to **move from A to B**.

Now you are standing on **allocation B** [2 kg of compost] and you are looking at **allocation C** [3 kg of compost]

Step 5. You are asking yourself a question :" **Should I move from B to C?** "

To answer the question you have to compare two things:

Additional Benefits from " Moving from B to C" with Additional Costs of "Moving from B to C". Additional Benefits from " Moving from B to C" are associated with extra yield of tomatoes due to extra kg of compost. Selling that extra yield of tomatoes on the market will bring you an Additional Revenue. Therefore, Additional Benefits from " Moving from B to C" = Total Revenue you generate from adding 3 kg of compost – Total Revenue you generate from adding 2 kg of compost :

$$125*\$0.30 – 120*\$0.30 = \$1.50$$

The 3nd additional kg of compost will bring you extra $1.50 in total revenue. But the extra kg of compost will cost you $1.00.

Step 6. As we see, Additional Benefits from " Moving from B to C" = $1.50are bigger than Additional Costs of "Moving from B to C" =$1.00. Thus, the cost – benefit principle advises you to move from B to C.

Now you are standing on allocation C [3 kg of compost]and you are looking at **allocation D** [4 kg of compost]

Step 7.You are asking yourself a question :" **Should I move from C to D?** "

To answer the question you have to compare two things:

Additional Benefits from " Moving from C to D " with Additional Costs of "Moving from C to D". Additional Benefits from " Moving from C to D" are associated with extra yield of tomatoes due to extra kg of compost. Selling that extra yield of tomatoes on the market will bring you an Additional Revenue. Therefore, Additional Benefits from " Moving from C to D" = Total Revenue you generate from adding 4 kg of compost – Total Revenue you generate from adding 3 kg of compost

$$128*\$0.30 – 125*\$0.30 = \$0.90$$

Step 8. As we see, Additional Benefits from " Moving from C to D" = $0.90are less than Additional Costs of "Moving from C to D" =$1.00. Thus, the cost – benefit principle does not advise you to move from C to D.

Therefore, **the optimal allocation is C**[3 kg of compost]. If you add 3kilograms of compost you will maximize your total revenue.

3. **Conclusion**

Although two problems above are artificially created and the algorithm to solve them can't be applied directly to real – life issues of optimal allocation of resources but students, nevertheless, will greatly benefit from solving them. They will get used to look at the real world problems

through the glasses of " opportunity costs and the cost-benefit principle". This is the major benefit they should expect from studying and learning the principles of Introductory Economics. It is my deep persuasion that our role as economic educators is to help beginning students to form their economic way of thinking. As John Maynard Keynes said in his famous General Theory of Employment, Interest and Money: "The theory of economics does not furnish a body of settled conclusions immediately applicable to policy. It is a method, rather than a doctrine. An apparatus of the mind, a technique of thinking, which helps its possessors to draw correct conclusions."

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