

# Evolution of the Common Belief That “Things Have Costs”: Psychological Perspective

Sergei Peregonchuk

Correspondence: Sergei Peregonchuk, the National University of Samoa, Faculty of Business and Entrepreneurship

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## Abstract

The paper examines critically the current method of teaching one of the core topics in Introductory Economics. The area of my criticism of the traditional Production Costs theory as it had been currently taught in many universities across the world is that it inevitably creates in the minds of beginning students a false perception that “*things have costs*”. The Economic Way of Thinking as the alternative approach to the traditional way of teaching Introductory Economics disarms this popular idea and affirms that “*only actions have costs*”. The discussion is done in the form of dialogue between the author and a reader.

**Keywords:** economic education, teaching introductory economics, undergraduate curriculum, cost-benefit principle

## 1. Introduction

If you flip through the pages of any classical textbook on Introductory Economics written by G. Mankiw, P. Krugman, R. Lipsey, M. Parkin or A. Layton and taught in North American, European or Australian universities you will discover that practically every page of it is riddled with formulas or graphs. Some Introductory Economics textbooks have been converted into a course on analytic geometry or calculus. I would not see any problems with this approach if all the beginning students were destined to apply to graduate schools and pass PhD exams. But in reality only a few of them follow that path.

In this paper I want to examine critically the current traditional method of teaching one of the fundamental topics in Introductory Economics - Production Costs- to identify the consequences of that approach on the application of the Production Costs concept to everyday economic and social issues. After studying this topic using one of the classical textbooks mentioned above the beginning students will be able to derive rigorously the behavior of the marginal and the average cost curves. They get a good understanding of the relationship between these two types of costs. Students also can do calculation of different elements of costs of production and they are equipped well enough to express them in monetary terms. But they have no clue how to apply that knowledge to everyday practice of business firms. And not because they did not grasp well enough the production costs theory but because that theory by its nature – which is perfectly flawless in the realm of its assumptions - can not be immediately applied to real world issues. That is why many students who successfully passed “rigorous” economics tests based on the use of math failed the tests when they asked to apply the principle of opportunity cost to everyday economic problems.

I must confess here that I was one of them. When I go back to my studies of Economics at the University of Illinois (Urbana-Champaign) and the University of Manitoba I remember that I had firmly embraced the concept of production costs. At that time I was naïve enough to believe that the good understanding of the behavior of cost curves and the grasping of technics of quantitative methods were the main roads to success in understanding the economic world around me. And for many years I passionately passed that conviction on my Mount Royal University students loading them with formulas and graphs. Until later on I had a chance to come across Paul Heyne’s “The Economic Way of Thinking” (Heyne, P., Palmer, J. The Economic Way of Thinking, 1<sup>st</sup> Canadian ed. 1995, Pearson Education). That textbook had dramatically changed my way of teaching Introductory Economics. I hope that some of my colleagues may experience the same story.

But let us go back to our analysis. Below I have identified the most important area of the analysis of the costs of production where I would like to draw a borderline between the current traditional method ( I will refer to it as “The Traditional Approach” ) and its alternative - “The Economic Way of Thinking”. For that purpose I will contrast three classical textbooks written by G. Mankiw, R. Lipsey and R. Frank/ R. Bernanke – they will represent the “The Traditional Approach” - with the Paul Heyne’s textbook which will speak on behalf of “The Economic Way of Thinking” (Frank, R., Bernanke, B.(2012). Principles of Microeconomics, 4<sup>th</sup> ed., Mc-Graw Hill Education; Lipsey R., Chrystal, K. (2007). *Economics*. 11<sup>th</sup> ed. Oxford University Press; Mankiw, G. (2009). Principles of Microeconomics. 5-th ed. South-Western

Cengage Learning, USA)). The area of the analysis is associated with the question:” **Do “things” have “costs?”**”

## **2. Process of Formation of Notions of “Things” and “Costs” in the Mind of John Smith**

To justify the basic thesis of the article that the traditional economic theory set forth in the popular textbooks on Principles of Economics forms a false idea in the consciousness of students that *“things have costs”* we invite our reader to an exciting journey to trace back the evolution of these notions in the mind of our personage John Smith. We will observe the behavior of our hero from his early childhood to the time when he finished his studies of Principles of Economics at the Bissett Business School and got his A+ on the final exam. In this investigation we will base ourselves on the generally accepted scientific truths set forth in the works of the prominent psychologists as Ivan Pavlov, Jean Piaget, Lev Vygotsky, Kurt Levin, John B. Watson, Edward Thorndike, Burrhus Skinner, Clark Hull, Ernst Meumann.

Let us start our journey. Imagine that our hero John Smith has turned 1.5 years a few days ago and his parents have decided to celebrate this event in the Chinook shopping mall having taken their kid with them. Let us carefully watch the behavior of that little toddler. The Chinook shopping mall is a kingdom of things. They as though talk to our little John and say to him:” Look at us how beautiful we are, how attractive we are. Touch us, take us into your hands”. John stretches out his little hands to an every thing not having the ability to resist that magic force which those things have on him. All of a sudden his attention was captured by a brightly-colored car model “Jaguar”. As if under its spell he is stiffen with astonishment not taking away his eyes from that “Jaguar”. If you had a chance to look at the eyes of our hero at that moment then you would see in them such passion and fire which would be in the eyes of a gold-digger who had spent all his life searching for the treasures and, finally, had discovered a trunk with the precious bars in the Alaska’s dark and wet cave. But the perambulator is moving ahead and John’s attention is captured by the variegated rubber balls hanging on a cord. At this moment John has totally forgot about the magic “Jaguar”. Now he is totally under the power of these balls.

To imagine what is going on in the consciousness of our little hero we have, first of all, to explore the relationship of the 1.5 years old kid to the external reality around him. German psychologist Kurt Lewin better than others had investigated this relationship. Due to his numerous experiments he had come out with a theory of the behavior of a little child in the outer situation (Lewin, K. Field theory in social science. New York: Harper, 1951). What is the main feature that characterizes the behavior of a child in her early childhood? K. Lewin’s experiments demonstrated as well as the behavior of our hero in the Chinook mall that it is a bindness by a situation itself (Lewin, K. A dynamic theory of personality. New York: McGraw-Hill, 1935; Выготский, Л. Психология развития ребенка. - Москва, издательство ЭКСМО, 2005, с. 134; Piaget, J. Origins of intelligence in the child. London: Routledge & Kegan Paul, 1936). When a child is moving into a situation, her behavior is totally determined by this situation. The behavior is considered as a dynamic part of the situation itself. Experiments show that from every object comes out the so-called “affect” – a magnetic force which induces a child to respond to it. Every object pulls a child to touch it, to take it into her hands, etc. They assume a special commanding character called K. Lewin as “Aufforderungscharacter” and -as a result- they are loaded by such a magic force that it impels a child to certain actions (Lewin, K. A dynamic theory of personality. New York: McGraw-Hill, 1935; Выготский, Л. Психология развития ребенка.- Москва, издательство ЭКСМО, 2005, с. 135).

What is behind such a behavior of 1.5 years old child? J. Piaget and L. Vygotsky stated that the main distinguishing feature of that kind of a behavior is the origin in the consciousness of a child the unity between sensors and motor functions. Bee Helen in her well-known book “Lifespan Development” says, that in Piaget’s view a little child is “entirely tied to the immediate present, responding to whatever stimulus available. She forgets events from one encounter to the next and does not appear to plan... Piaget thought that the baby still does not have mental symbols to stand for objects...” (Helen, B., Boyd, D., Johnson, P. (2006). Lifespan Development. 2<sup>nd</sup> Canadian ed., Pearson Education Canada Inc., Toronto, p.109,111). David Shaffer states that “during the sensorimotor stage infants coordinate information from their senses and motor actions to learn about the world” (Shaffer D.R. (2002). Development psychology of childhood and adolescence. 6<sup>th</sup> ed. Thompson Learning, p.340). Paul Mussen concludes that “ Piaget distinguished between two major stages in intellectual development: sensorimotor intelligence (0 to 2) and conceptual intelligence ( 2 to maturity)” (Mussen, P.H. , Conger, J., Kaggen, J. (1969). Child Development and Personality. 3<sup>rd</sup> ed. Harper and Row, New York, p. 194). Therefore, every thing that our 1.5 years old John looks at, he wants to touch by his hands. Every act of his perception is inevitably followed by his action. In the basis of that kind of a behavior is the things’ magic force which determines the “affect” character of John’s perception.

To sum up what we discussed above, we can conclude that the perception of a child up to 2 years old possesses 2 features. The first one is its “affect” character. Perception is a passion. The expression of eyes with which our 1.5 years old John has been looking at “Jaguar” is totally different from that of how we – the adults- perceive things around us. The second feature lies in the fact that perception is a dominant function of consciousness. As is generally known, we perceive the outer reality by our senses and then process what we perceived with the help of our memory, attention and thinking. Below in the Fig. 1 we have made an attempt to present this process in the consciousness of an adult in a very simplified

form. In the beginning a flow of information from the outer world goes through the “Perception” block where the information is perceived by our senses (eyes, ears, etc.). After that the perceived information presented in our consciousness is processed by “Memory”, “Attention” and “Thinking” blocks.

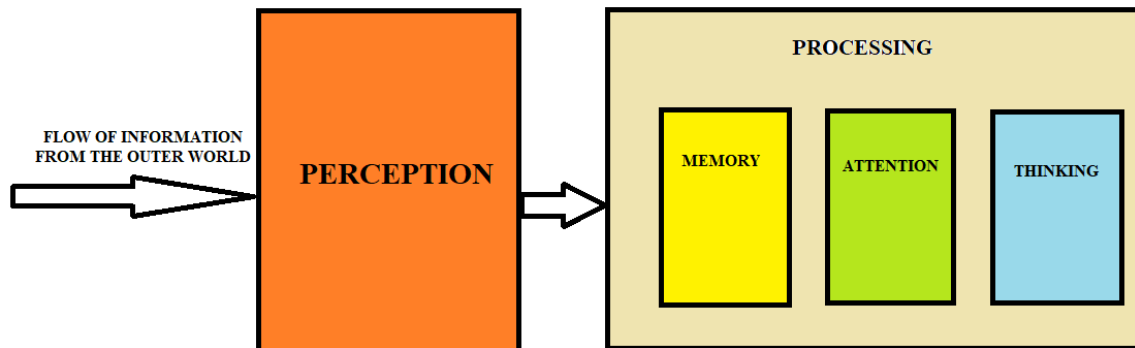


Figure 1. How adults perceive information from the outer world

The functions of “Memory”, “Attention” and “Thinking” are not yet differentiated in the mind of our 1.5 years old John. Fig. 2 serves as a visual illustration of the situation when these functions are totally absorbed by “Perception” and are subordinated by it. They are not independent and operate inside “Perception”. Therefore, we can consider them as extension and development of “Perception” itself. It is a fact that the memory of a 1.5 years old child reveals itself always in the active process of perception – the recognition. To think for our hero John – because he reveals some intellectual activity – is not to recollect. To think for him is to distinguish between different affects and to take actions according to the specifics of the outer situation. L. Vygotsky underlines that “the visual affect-colored perception turned into an action prevails in this age” (Выготский, Л. (2005). Психология развития ребенка.- Москва, издательство ЭКМО, с. 139).

To wind up our discussion about the character of the behavior of our hero in the Chinook shopping mall, we can state that the perception of the 1.5 years old John is totally tied up by a specific situation in which he currently finds himself. He can bring nothing into it. When John looks at “Jaguar” he sees only this car model - its color, form, position in the space and etc. In his consciousness there is no imagination separated from the situation in which he finds himself. John is totally under the spell of “Jaguar”. The fact that this “Jaguar” is a model of a car as means of conveyance our little John does not realize. “Jaguar” for him is only a brightly-colored object from which comes out a magic and powerful force that says to him: ”Take me into your hands, touch me, I am so beautiful”.

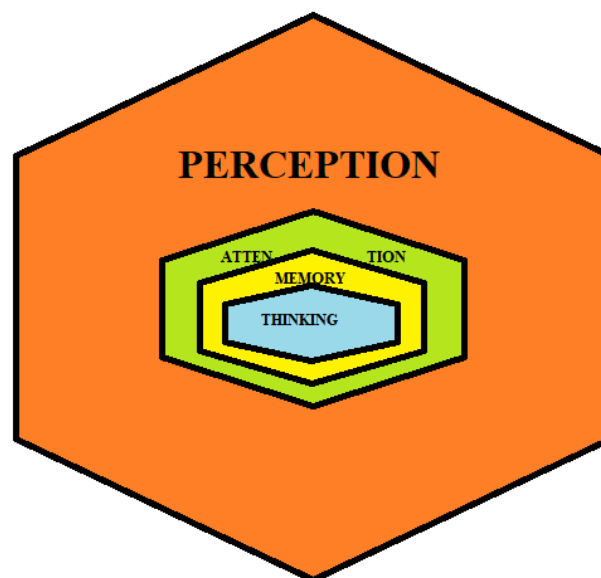


Figure 2. How 1.5 years old John perceives the information from the outer world

Therefore, based on what we discussed above, we can contend that at this stage of development there are no notions of “things” and “costs” in John’s consciousness. Only later the outer reality will become for him the world of things having a certain sense.

At this point we can see a question arising in the mind of our reader: ” *When do things become sensible in the mind of a child? How does the transition from the directly visual perception to a sensible perception take place in the consciousness of a child?*”. The fundamental changes in a child’s perception occurs with the origin of a speech. Speech makes the change in the structure of perception bringing an element of reasonableness. With the help of a speech a child for the first time in his life puts an order into the world of things so that things assume a certain meaning.

Due to the purpose of our research paper we can distinguish between two stages in the development of a child’s speech. The words of a child of up to 3 years old are tied closely to the specific situation or to the specific object to which these words are related. The separation of a word from the object does not exist yet. There is always an object behind the word. One of the most important characteristics of speech in that period of a child’s development is that speech is not recognized. Our little John speaks but he does not recognize that he speaks (Выготский, Л. Психология развития ребенка.- Москва, издательство ЭКСМО, 2005, с. 141).

The fundamental change occurs when a child reaches the period between 3-8 years of age. By this time he is able to separate a word from the object related to this word – speech becomes means of generalized perception. This intelligent generalized perception gives our little hero an ability to see in an object which takes his attention something more than it is contained in his direct visual act. Here we observe the origin of a totally different kind of a vision which is largely an abstraction. That type of perception already contains footprints of generalizations.

When our 1.5 years old John was looking at “Jaguar” - its color, its form, its position in the space was reflected on the retina of his eyes. He was drawing his little hands towards the car model trying to touch it not because he knew what a car is and what a function it can serve for him. John desperately desired to touch “Jaguar” only because there was the strong magic pulling force coming from the model. John could not resist that power. But when now our 5 years old John is looking at the same “Jaguar”, he sees in it not only its outer characteristics - its color, its wheels, its roof and etc. The first thing that John now sees in “Jaguar” is that it is means of conveyance. The visual act of perception of this specific model is taking place simultaneously with the intelligent, generalized perception of “Jaguar” as a representative of a certain class of things.

We are coming now to a very important point in our research paper concluding that the origin of speech and the intelligent, generalized perception represent the beginning of a process of formation of notions in the consciousness of a child. This process has its own logic and can be divided into two stages:

1) development of a **spontaneous ( worldly)** notion;

2) development of a **scientific** notion. ( Vygotsky, L. S. (1986). *Thought and Language* (A. Kozulin, Trans.). Cambridge, Massachusetts: The MIT Press; John-Steiner, V., & Mahn, H. (1996). *Sociocultural approaches to learning and development: A Vygotskian framework*. *Educational Psychologist*, 31(3/4), p. 191-206).

As we stated in the very beginning of the article, our purpose is to investigate the development of notions of “things” and “costs” in the mind of our hero John Smith. Based on the above conclusion we can say that the origin of the spontaneous notions of “things” and “costs” in the consciousness of John occurs somewhere between 3 and 8 years of age. These notions do not originate from an empty space and do not come into existence from an unknown area. Every time when a little child asks his parents “ Whatz it?” or “Why?” he learns. In our case, the Chinook shopping mall is the school for our hero John Smith. The learning process takes place every time when parents take him in his perambulator to the mall and talk to each other what products they want to buy and how much money they are willing to spend on them. Although at that time John was not yet an active participant of distribution of a limited family budget between the family’s unlimited wants, he was a witness of numerous acts of buying and selling done by his parents. Every time when John’s Dad was buying a certain good and at the same time was invariably taking a wallet out of his pocket and was paying for the good he obtained – such interdependence between “things” and “money” although not yet recognized, nevertheless left inevitably its footprint in the nervous system of John.

Both processes – the development of speech and the development of worldly experience in his school of life named the Chinook shopping mall were inevitably interconnected and exerted influence upon one another. Every new visit to the mall left a footprint in John’s consciousness about correlation between “things” and “money” and the development of speech contributed to the better “digestion” of that relationship in his mind. The evolution of both processes must have been reached a certain quantitative level before John – for the first time in his life – could have asked his father that momentous question:” Daddy, could you give me \$50 cents? I want to but my favorite ice-cream with a strawberry flavor”. That episode is the evidence of formation in the consciousness of 5 years old child of the stable notion of

“money” as the thing possessing which gives him an ability to obtain other things.

To understand better how notions are formed in our consciousness we will switch attention of our reader to the role of memory in that process. It is known that memory as the complex psychological process consists of a number of moments. The most important of them is the **fixing of a reaction** - the presence of a nerve footprint from a certain irritant. Physiologists and psychologists confirmed long ago that any reaction to an outward irritant does not disappear but is saved in our consciousness. Therefore, every trip of John’s parents to the Chinook shopping mall inevitably left its footprint in John’s memory – in his nerve track named “things-money”. The shopping mall was a peculiar school where the notions of “things” and “money” and their interdependence were forming in the mind of our hero. We can consider the learning experience that our little John was obtaining in the mall as a process of fixing in his consciousness his reactions to the numerous acts of “buying-selling”. Without that training our hero would not been able to ask his Dad – for the first time in his life- that momentous question about 50 cents. There would not exist the material prerequisite for that event – the beaten nerve track called “things-money”. John’s words:” Dad, could you give me, please, 50 cents to buy my favorite ice-cream?” were just a reproduction of the reactions already fixed in his nerve system due to the previous training in his school of life called the Chinook shopping mall. These words provide us with an undeniable evidence of formation of notions “things” and “money” and their tight interdependence in the consciousness of 5 years old John.

Thus, we can talk now about the origin of the spontaneous, worldly form of the notions of “things” and “costs” and the correlation between them in the mind of John. It is quite understandable that the abstract, scientific notions of “things” and “costs” were absent in the John’s consciousness at that moment . Our hero had yet to reach his university age where he will form these type of notions taking appropriate courses on Philosophy and Economics. On the other hand, the spontaneous notion of “costs” appears in his mind in the form of the spontaneous notion of “money”. At this age the interdependence between “things” and “costs” breaks down in John’s consciousness into a number of relationships where the notion of “money” is related directly to those specific things which our little hero wants to obtain ( for the parents’ money, of course). “Things” appear in John’s mind in their spontaneous, worldly form – as the notions of specific things: an ice-cream, a car, a cat, a dog, a clock and etc..

The qualitative change in the content of the notion of “costs” takes place in John’s consciousness later on as a result of another momentous event in John’s life – 12 years old John decides that he is old enough to earn money. He starts his work history by delivering flyers in his neighborhood. The dramatic change in John’s social status inevitably produces the appropriate changes in his consciousness. When 5 years old John obtained his favorite ice-cream using his Dad’s money then the notion of “costs” as something associated with “loss” could not have been formed in his mind. There was no material prerequisites for that. Money which his Dad gave him were not associated in his mind with “loss”. Quite contrary - Dad’s money were “benefits” for John. But when John began to spend money earned by his own labor, the spontaneous notion of “costs” which appeared before in the form of the notion of “money” has changed its nature dramatically. Every time when John was taking \$2 from his own pocket to pay for his favorite strawberry ice-cream (due to the ongoing inflation) these money were reflected in his consciousness as real “loss”. But “loss” is a worldly notion which forms the basis of the notion of “costs” and represents the nature of it. We observe here the process of transformation of the embryonic form of the notion of “costs” into its fully-fledged, complete form. Therefore, we can conclude that at this age the idea that **“things have costs”** has been firmly rooted in John’s mind.

The table below sums up the discussion we had above about the evolution of the spontaneous, worldly form of the notions of “things” and “costs” in the consciousness of our hero John from his early childhood to the time when he was ready to do his undergraduate studies at the Bissett School of Business at the Mount Royal University.

Table 1. The process of evolution of the notions of “things” and “costs”

Different age stages	Content of the notions of “things” and “costs”
1. Age 0-2: absence of speech	Notions of “things” and “costs” are absent
2. Age 2-5: origin of speech	Origin of the spontaneous, worldly form of the notions of “things” and “costs” : 1) the notion of “things” appears in its concrete form of different specific things; 2) the notion of “costs” appears in its embryonic form of “money”
3. Age 12-19: working activity	Transformation of the embryonic form of “costs” into its fully-fledged, complete form

### 3. Do “Things ” Have Costs?: The Traditional Theory of Production Costs

The idea that “things have costs” has been strengthened further in the mind of our hero when he was taking Introductory Microeconomics during his undergraduate studies. Let us walk together through the relevant pages of the most popular in North America textbooks written by G. Mankiw, R. Lipsey and R. Frank/R. Bernanke and see how these authors treat the concept of “costs of production”. You have to be patient though because the journey will not be easy and short. But I will try to do my best to make it evident to an objective reader that in the realm of “The Traditional Approach” “things” do have costs.

R. Lipsey in chapters 7 and 8 develops a theory of how costs vary with *OUTPUT*. The basic element of that theory is “a simplified production function  $Q = f(L, K)$ , where  $Q$  is quantity of *OUTPUT* per period of time,  $L$  is the flow of labor services employed in production, and  $K$  is the flow of capital services used. The letter  $f$  stands for the relation that links the inputs to the output”. (Lipsey, R., Chrystal, K. (2007). Economics. 11<sup>th</sup> ed. Oxford University Press, p. 161). Given that production function R. Lipsey derives two basic types of costs in the short-run – “totals” and “averages”.

In the beginning let me reproduce definitions of different types of “totals”: **Total costs** are the sum of all costs that the firm incurs to produce a given level of *OUTPUT*. Total cost is divided into two parts : total fixed cost and total variable cost. **Total fixed costs** are all costs of production that do not vary with the level of *OUTPUT*. **Total variable costs** are total costs of production that vary directly with the level of *OUTPUT*” (Lipsey, R., Chrystal, K. (2007). Economics. 11<sup>th</sup> ed. Oxford University Press, p. 166). The relationships between these types of total costs can be summarized below

$$TC = TFC + TVC, \text{ where}$$

TC – total costs,

TFC – total fixed costs,

TVC – total variable costs.

Having defined “totals”, R. Lipsey gives definitions of “averages”: “**Average total cost** is the total cost of producing a given level of *OUTPUT* divided by the number of units of *OUTPUT*. ...**Average fixed cost** is the total fixed cost divided by the number of units of *OUTPUT*. ... **Average variable cost** is the total variable cost divided by the number of units of *OUTPUT*.” (Lipsey, R., Chrystal, K. (2007). Economics. 11<sup>th</sup> ed. Oxford University Press, p. 167).

The relationships between these types of average total costs can be summarized below

$$ATC = AFC + AVC, \text{ where}$$

ATC – average total costs,

AFC – average fixed costs,

AVC – average variable costs.

Now let us carefully analyze the above definitions of costs trying to identify the nature of all of them. For that purpose I am going to ask you a couple of questions which will help you to accomplish that task : “What is common between these definitions of “totals” and “averages”? Do you see any pattern in these definitions? What is the key word that unites all of them?”

I hope that after an objective investigation you will agree with me that the answer to all three questions above is “**OUTPUT**”.

Let us walk through the relevant pages of R. Frank/R. Bernanke textbook - Ch. 8 “Behind The Supply Curve”. The authors’ treatment of “costs of production” – as you will see in a bit- is essentially the same as in R. Lipsey’s textbook: the core of the theory of “costs of production”, its starting point is the Production Function. The authors give a classical definition of a hypothetical Production Function:” A production function is the relationship between the quantity of inputs a firm uses and the quantity of output it produces”( Frank, R., Bernanke, B. (2012). Principles of Microeconomics, 4<sup>th</sup> ed., Mc- Graw Hill Education, p.193). In the paragraph “From The Production Function To Cost Curves” R. Frank and R. Bernanke explain how information about firm’s production function can be translated into information about costs. So, let us see how they define different types of costs to make a comparison with R. Lipsey’s treatment of costs.

In the beginning the authors present “totals”:

“The **total cost** of producing a given level of *OUTPUT* is the sum of the fixed cost and the variable cost of producing that quantity of *OUTPUT*. ... A **fixed cost** is a cost that does not depend on the quantity of *OUTPUT* produced. It is the cost of the fixed input. ... A **variable cost** is a cost that depends on the quantity of *OUTPUT* produced. It is the cost of the variable input.” (Frank, R., Bernanke, B. (2012). Principles of Microeconomics, 4<sup>th</sup> ed., Mc- Graw Hill Education, p.197).

After that they define different “averages”:

“The **average total cost** is total cost divided by the quantity of **OUTPUT** produced...

**Average fixed cost** is fixed cost divided by the quantity of **OUTPUT**... Average variable cost is variable cost divided by the quantity of **OUTPUT**...” (Frank, R., Bernanke, B. (2012). Principles of Microeconomics, 4<sup>th</sup> ed., Mc- Graw Hill Education, p.203-204).

Now, let us analyze the above definitions of costs asking ourselves the same three questions as we did in R. Lipsey’s case:” What is common between these definitions of “totals” and “averages”? Do you see any pattern in these definitions? What is the key word that unites all of them? “. After careful analysis we can see that the answer to those three questions is “**OUTPUT**”. Thus we have arrived at the same conclusion about the nature of these different types of costs as we did in Lipsey’s case.

Now let us look at the treatment of the costs of production in G. Mankiw’s Principles of Microeconomics. He starts the section “Production and Costs” with the introduction of the core element of the theory of the costs of production - Production Function defining it as “the relationship between quantity of inputs used to make a good and the quantity of output of that good” (G. Mankiw. Principles of Microeconomics. 5-th ed. South-Western Cengage Learning, USA, 2009, p. 271). In the paragraph “From The Production Function To The Total-Cost Curve” G. Mankiw explains how the information about firm’s inputs and output can be translated into the information about costs. He begins with the presentation of “totals”: “ ... **total cost** can be divided into two types. Some costs, called **fixed costs**, do not vary with the quantity of **OUTPUT** produced. They are incurred even if the firm produces nothing at all... Some of the firm’s costs, called **variable costs**, change as the firm alters the quantity of **OUTPUT** produced.”

(G. Mankiw. Principles of Microeconomics. 5-th ed. South-Western Cengage Learning, USA, 2009 , p. 275). Having defined “totals” the author gives definitions of different “averages”:

“Total cost divided by the quantity of **OUTPUT** is called **average total cost**. Because total cost is the sum of fixed and variable costs, average total cost can be expressed as the sum of average fixed cost and average variable cost. **Average fixed cost** is the fixed cost divided by the quantity of **OUTPUT**, and **average variable cost** is the variable cost divided by the quantity of **OUTPUT**” (G. Mankiw. Principles of Microeconomics. 5-th ed. South-Western Cengage Learning, USA, 2009 , p. 276).

Let us analyze the above definitions of different types of costs asking ourselves the same three questions as we did in R. Lipsey and R. Frank/B. Bernanke cases :” What is common between these definitions of “totals” and “averages”? Do you see any pattern in these definitions? What is the key word that unites all of them? “. After careful analysis we can see that the obvious answer to those three questions is “**OUTPUT**”. We have arrived again at the same conclusion about the nature of these different types of costs.

At this point our reader can ask legitimate questions: ”Why this is the case? What is the reason for that? “. As we have seen above, the main block on which the theory of costs is built in those textbooks is the Production Function  $Q = f(L,K)$ . Dependent variable Q (“OUTPUT”) plays a key role there. As a result, all different definitions of costs naturally come out from the Production Function and they are tightly fastened to the variable Q. Graphical representation of that situation is given below in Fig.3:

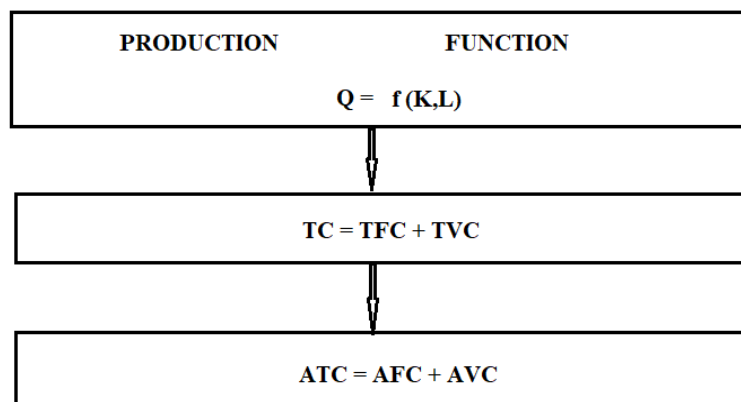


Figure 3. Causality relationships between the Production Function and different types of costs

Therefore, from the beginning the three textbooks put into the mind of an undergraduate student an idea about strong correlation between “output” and “costs”. The idea that “output” has “costs” is strengthened later on when the authors

present the graphical relationship between different cost curves. Look at the famous graph below on Fig.4 which is known practically to every undergraduate student who studied the costs of production concept using “The Traditional Approach” – you will see “**output**” on the horizontal axes and “**cost**” on the vertical.

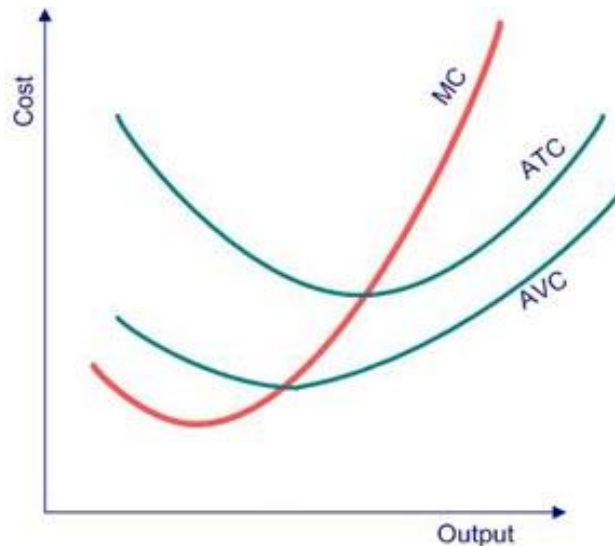


Figure 4. Functional relationship between “**output**” and “**cost**”

At this point we are ready to make a final logical step in our discussion. It is known that the notion of “**output**” is a particular form of the generalized notion of “**things**”. Taking that into account we can conclude that the three textbooks that represent “The Traditional Approach” inevitably create in the mind of an undergraduate student a firm idea that “**things have costs**”.

Now, let us make an attempt to look at what is going on in the mind of our hero John when he is studying Production Costs using one of “The Traditional Approach” textbooks. In another words, let us have a psychological perspective of that process. The prominent German scientist Ernst Meumann – the founder of the experimental pedagogy – had been able to demonstrate by his experiments that the repetition of phrases that are a little bit different from one another by form but have the same meaning results in better understanding of the meaning itself. Ernst Meumann had brought forward a method of fixing reactions when the learning material was divided by parts and the union of the meaning of the material that students were supposed to learn was taking place by putting together these smaller units ( Meumann, E. (2017). *The Psychology of Learning*. Andesite Press).

Applying this method to our case, we can see that the general interdependence between “**things**” and “**costs**” was presented by the different types of productions costs. But in every particular definition of “**totals**” and “**averages**” we see the presence of the nature of the general interdependence between “**things**” and “**costs**” expressed in the idea that “**things have costs**”. Every time when John was carefully studying the next definition of a particular type of production costs the fixing of a new reaction was taking place in the mind of John. But simultaneously another process was taking place in his consciousness - that activity left its footprint on the old beaten nerve track which retained information that “**things have costs**”. This movement repeated many times as John was going through the definitions of different types of costs of production inevitably resulted in the fixing in his consciousness the firm belief that “**things have costs**”.

To summarize finally the above discussion we can conclude that the theory of costs of production presented in “The Traditional Approach” textbooks **focuses only** on the *quantitative* aspect of the nature of production costs leaving aside the most important *qualitative* aspect – **opportunity cost**. That focus has its logical consequences. It **inevitably** produces in the mind of an undergraduate student a strong belief that “**things**” per se have “**costs**”.

#### 4. Do “**Things**” Really Have Costs?: Experiment (Part 1)

Now we can see a thought arising in the head of our objective reader:” *OK. You have persuaded me. You have provided enough arguments above in order for me to believe in your idea that the Traditional Approach forms in the minds of students the false belief that “things have costs”. But any theory to be the true theory must be tested. Until your idea is experimentally proved I can say that our long discussion we had above is only an imagination of a modest Introductory*



*Economics instructor who just does not like the Traditional Approach for some subjective reasons and who is trying to pick up randomly arguments to present that approach in a negative light*". To prove experimentally the basic thesis of our article we did the survey of students who studied the topic "Production Costs" using the Traditional Approach textbooks. 482 students from the universities in 6 countries – Canada, Poland, Czech, Ukraine, Fiji and Samoa- have been participating in the survey. The students were offered one question: "Do things have costs?". First of all, they were supposed to respond choosing "Yes" or "No". After that they have been asked to write maximum 3 sentences to explain their choice.

Running ahead, we must say that the right answer to the question is "No" because "things" do not have costs, only "actions" have ( you will be persuaded later on why this is the case). We have received 45 "No" responses. But among those 45 students who answered "No" only 5 were able to explain their choice in some acceptable, logical way. Due to the fact that by the content of explanations there was no difference between those 40 "No" answers and 437 "Yes" answers of the rest of the students we combined the responses of both groups together forming actually one big "Yes" group which contained 477 students. Thus, out of 482 students only 5 (which is 1.04%) have provided the right answer to the question. As a result, 98.96% of students have answered "Yes". You do not need to have a degree in Statistics to realize that here we have got the convincing experimental proof of our thesis that the Traditional Approach really creates in the minds of students the false idea that "**things have costs**".

For those who teaches Introductory Economics we have provided below the more detailed information about the content of students' answers. We must admit, first of all, that the majority of the students – 232- studied the topic "Production Costs" using G. Mankiw's Principles of Microeconomics (Mankiw, G. (2009). Principles of Microeconomics. 5-th ed. South-Western Cengage Learning, USA). Out of that group 208 students answered "Yes". Below I have provided information about the character of distribution of these answers:

- a) 103 students explained their choice of "Yes" due to the fact that "we need resources to produce things";
- b) 54 students argued that "in order to obtain things we need to spend money";
- c) 9 students pointed out to the presence of "opportunity costs as implicit costs";
- d) 42 students were not able to provide adequate explanation according to the theory of production costs presented in the textbook.

24 students answered "No". But only 2 of them were able to explain properly their choice of "No" reasoning that "things" do not have costs, only "actions" have. The content of the explanations of 22 students who answered "No" is practically the same as in the case of the students who answered "Yes".

Therefore, we can state that the data above provide us with an evidence that 230 students out of 232 actually answered "Yes" to the question: "Do things have costs?". That result gives us the convincing confirmation that the studying of "Production Costs" using G. Mankiw's Principles of Microeconomics creates in the minds of students the false notion that "**things have costs**".

## 5. Dialog at "After Eight Inc"

At this point we can see a thought arising in the mind of our reader: "OK. You have persuaded me that the Traditional Approach takes into account only **quantitative** side of the theory of costs of production. But what is wrong with it? What is wrong with the idea that "things have costs"? It is a common knowledge that there is no theory that will capture all the features of our reality - any theory must have its own assumptions. Therefore, I do not see any problems with the theory of costs of production based on the Production Function. First of all, this theory which I learnt during my undergraduate studies equips me well enough to do the calculation of different elements of costs of production and to express them in monetary terms. That knowledge is much valued by many firms in the market place".

To help you to see the **real problem** with the idea that "**things have costs**" let us detour through the office of "After Eight Inc." - a small Calgarian company manufacturing kitchens. They currently hired our hero John Smith who graduated from the Bissett School of Business at the Mount Royal University. John was a diligent student of Principles of Economics and due to his efforts in his Microeconomics class he was able to win - over many candidates - a managerial position at "After Eight Inc.". One day an owner of "After Eight Inc." - who has been recently concerned by the rising costs of kitchen boxes - comes to John's office and asks him: "John, as far as I know it costs us \$150 to produce a kitchen box. I want to understand why this is the case".

John responds: " Sir, as you know, an oak sheet is the main component of our kitchen box. In order to obtain the sheet from our Edmonton supplier "Oakwood Limited" we pay \$120 for it". The owner says: " OK. I am aware of that. But why we **must** pay them that price? Can we get a better price from someone else?"

At this point John scratches his head – it was not an easy question for him - and a thought was rising in his head: " O, now

I am in trouble...”. But after a while a smile shows up on John’s face. He has remembered that he was an A+ student in his Microeconomics class and to his delight a phrase from his favorite “Principle of Economics” textbook written by R. Lipsey has come to his mind. With a great relief he says to the owner:” I really doubt, sir. As you know, we obtain our oak sheets on a very competitive market. I learnt in my Microeconomics class at the Bissett Business School that “majority of firms can’t influence the prices of the inputs that they employ; instead, they must pay the going market price for their inputs” (Lipsey, R., Chrystal, K. (2007). Economics. 11<sup>th</sup> ed. Oxford University Press, p. 166)””.

The owner responds grimly:” My boy, I know pretty well that we must pay the “Oakwood Limited” the going market price for the oak sheet, although I did not have a chance to go to a business school to study Principles of Economics. But I agree with you that we are stuck at this point and we have no other choice as to follow the market. Although I am still curious, why the market price we pay to the “Oakwood Limited” to obtain the oak sheet is *exactly* \$120? Could you enlighten me on that? ” And a big smile showed up on the owner’s face.

John already knew that if someone sees that big smile on the face of the boss he or she could be in trouble. But he answers boldly: ”Sir. Unfortunately, R. Lipsey’s “Principle of Economics” textbook which I studied in my Business School does not shed light on this question. The textbook does not go beyond this point and it only states that producers must pay the going market price. But a couple of days ago I had got across a very interesting book on Economics which, probably, can illuminate us on your question. Let us meet in a week and I will inform you about my findings”.

The textbook John had in his mind was “The Economic Way of Thinking” by Paul Heyne. After careful study of Heyne’s chapter “Opportunity Cost and the Supply of Goods” John - to his ultimate delight - was able to discover that Paul Heyne *does* go beyond the limits put on the theory of costs of production by the traditional quantitative approach. He couldn’t resist his excitement and had phoned his boss :” Sir. Sorry for disturbing you. But I diligently studied “The Economic Way of Thinking” for the last week and it seems like I have figured out the answer to your question about the nature of \$120 we must pay to obtain a single sheet of oak. It will not be easy for me to explain to you all the details over phone but at this point I can only say that the key to the solution is to use the concept of **opportunity cost** on which the whole construction of “The Economic way of Thinking” is built. Let me know when next time we can meet and I will tell you all the details”.

I hope that the above conversation between John Smith and the owner of “After Eight Inc.” has helped you to see very important difference between “The Traditional Approach” and “The Economic Way of Thinking” with respect to the theory of costs of production. But that difference lies not only in the realm of the theory. It has a very powerful application to the analysis of everyday economic situations.

## 6. Do “Things ” Have Costs?: The Economic Way of Thinking

Students that learnt the concept of the costs of production by the traditional way of teaching Principles of Economics were trained well enough not to miss raw materials, labor time, the machinery or tools when they do calculation of costs of production. They also know how to express the value of these inputs in monetary terms. They were taught that the sum of these values is the cost of production of a good in question (remember how well John Smith responded to the owner’s question about the dollar value of the costs of production of a kitchen box). “The Economic Way of Thinking” teaches that the calculation the costs of production that way is not necessarily wrong. But it leaves one very important question unanswered: “**Why did it cost the producers whatever it did cost, in monetary terms, to use these inputs?**” (Heyne, P., Palmer, J. (1995). The Economic Way of Thinking, 1st Canadian ed., Pearson Education, p. 64). When the owner of “After Eight Inc.” asked John Smith why the company must pay its supplier “Oakwood Limited” exactly \$120 for a single sheet of oak he responded that the theory of the costs of production which he had learnt in his Business School was not able to give the answer to that question.

The reason why “The Traditional Approach” to the theory of costs of production was impotent to shed light on the above question is that “The Traditional Approach” takes into consideration only quantitative side of the theory leaving aside the most important qualitative side of it – opportunity cost- which reflects deep economic nature of the costs of production. “The Economic Way of Thinking” – on the other hand- teaches that “the concept of opportunity cost asserts that the amount of money a producer must pay for any resource , human or physical, will depend upon what the owner of that resource can obtain from someone else, and this amount will depend upon the value of what that resource can create for someone else” (Heyne, P., Palmer, J. (1995). The Economic Way of Thinking, 1st Canadian ed., Pearson Education, p.65). “After Eight Inc.” must pay to “Oakwood Limited” exactly \$120 for a single oak sheet because “Oakwood Limited” has a dozen of other buyers who are willing to pay \$120 for the sheet. In that situation “After Eight Inc.” does not have any other choice as to pay “Oakwood limited” the “best opportunity” value. Therefore, “The Economic Way of thinking asserts that the value of foregone opportunities – which is the nature of the concept of opportunity cost- becomes the costs of production of a kitchen box.

Let us pause for a bit at this point and make some conclusions about the above discussion. Our reader would say:” *OK. Now I have a better idea about the difference between “The Traditional Approach” and “The Economic Way of Thinking”*

with respect to the theory of costs of production. I understand that “The Traditional Approach” is perfectly legitimate within realm of its assumption - Production Function. And I realize that the “The Traditional Approach” textbooks equip beginning students with some practical skills valuable at the market place. But at the same time “The Traditional Approach” inevitably produces in the mind of a student the false notion that “things have costs”. I remember that due to the conversation with his boss John Smith discovered a fundamental flaw in his critical economic thinking (in the beginning John was not able to respond properly to his boss’s question :” Why the market price we pay to the “Oakwood Limited” to obtain the oak sheet is exactly \$120?”). That flaw could have disastrous consequences for John’s future career at “After Eight Inc.”. Fortunate for him, “The Economic Way of Thinking” came in time to the rescue and saved his image as a well-trained manager.”

### 7. “Actions ” vs “Things ”

Finally we are coming to the most fundamental area which serves as a borderline that separates “The Traditional Approach “ from “The Economic Way of Thinking” with respect to the concept of production costs – the relationship between “actions” and “things”. The reason why John Smith was not able to find the answer to his boss’ question is because neither G. Mankiw, nor R. Lipsey with R. Frank/R. Bernanke never pay attention to the difference between “actions” and “things”. Fig. 5 below provides a visual illustration of the difference between the two approaches.

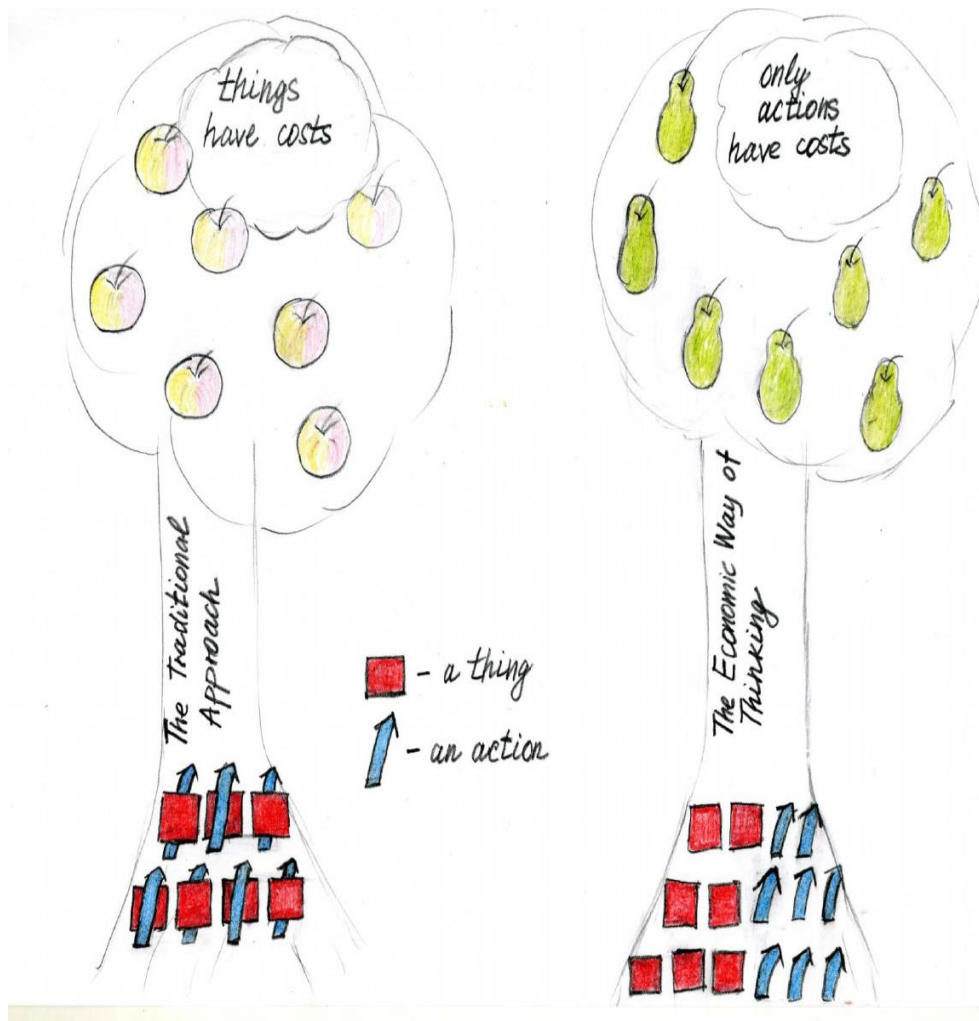


Figure 5. Visual illustration of the difference between the two approaches with respect to “actions” and “things” The figure above shows that the economic soil where “actions” and “things” are merged together inevitably produces its fruit – the idea that “things have costs”. The tree of “The Economic Way of Thinking” is rooted in totally different type of a soil where “actions” are separated from “things”. Therefore, it produces totally different type of a fruit – the idea that “things have no costs at all. Only “actions” have.

Contrary to the common sense which teaches that things do have “real” costs, “The Economic Way of Thinking” points out that “ things cannot have costs. Only actions have.” (Heyne, P., Palmer, J. (1995). *The Economic Way of Thinking*, 1<sup>st</sup> Canadian ed., Pearson Education, p.67). Paul Heyne defines the nature of the concept of “ **cost of an action**” :

*"The real cost of any action ( going to a movie, buying a pair of jeans, manufacturing a lawnmower, moving to Halifax, raising beef cattle, building a hardware store, taking out an insurance policy) is the value of the alternative opportunity that must be sacrificed in order to take the action... The real costs that dollars represent are the opportunities given up when the money is spent in one way rather than another "* (Heyne, P., Palmer, J. (1995). *The Economic Way of Thinking*, 1<sup>st</sup> Canadian ed., Pearson Education, p. 64).

To make an additional attempt to disarm the popular belief that **"things have costs"** - which passes itself as a common sense - let us examine critically the following situation. Assume that your 12 years old son plays hockey at one of Calgary Minor Hockey League division. During today's game between "Crowfoot Hawks" and "Crowchild Tigers " his hockey stick was broken. You take your son to a local "Sport Chek" store to buy a new stick. After spending some time looking at the vast array of sticks your son eventually makes his mind and asks a salesman : " Could you show me, please, that nice stick sitting over there on the first shelf?". You as a former hockey player have immediately appreciated the choice of your son . You ask the salesman with a trembling voice: " What is the cost of that piece of wood my son has chosen?" . The salesman answers: " Two hundred dollars, Sir".

Let us pause for a moment at this point and draw attention of our reader to the following two statements: **" the cost of the stick is \$200"** and **" the cost to you of purchasing the stick is \$200"**. Which of them does capture the above situation with respect to the nature of "cost" concept more accurately?

In the beginning it seems like these two statements have the same meaning expressed only in different words. But if you critically analyze them you will begin to see the fundamental difference between them. First of all, looking at the first statement you realize that **"cost"** is linked to the **"stick"**. Therefore, this statement inevitably produces in your mind the idea that **" things have costs"**. In the second statement **"cost"**, first of all, is associated with **"you"**. Your son may not pay attention to that difference but not you. Does not matter which textbook you were using in your Principle of Economics class – G. Mankiw, or R. Lipsey , or R. Frank/R. Bernanke or P. Heyne - it is **"you"** that must get \$200 out of **your** pocket. Thus, the second statement forms in your mind the idea that the concept of **"cost"** must be , first of all, tightly associated with a **"person"** but not with a **"thing"**.

Now we are coming to the most important difference between the two statements. As you see, in the second statement **"you"** is associated with an **action** - **"purchasing"**. To make the **"cost"** a meaningful idea to you **"you"** must get into your pocket to get out \$200 and then **"you"** must pay these money to the salesman. Until you perform that **action** the concept of **"cost"** has no real meaning to you . It is a shell without content. It is empty. Only your **action** makes it alive having filled the shell with the content.

Thus, only the second statement accurately captures the content of the "Sport Chek" story with respect to the nature of the concept of **"cost"**. The key element that had separated the two statements from one another was an **"action"**. As we discovered, without an **"action"** the concept of **"cost"** is dead, it had no meaning.

If at this point you are still not 100% sure that contrary to the common sense things per se do not have costs then we are going to conduct a final experiment which will chase away from your mind the smallest doubts. Have a look at the Fig. 6 below

The cost of \_\_\_\_\_ a hockey stick is \$\_\_\_\_\_

Figure 6. Form for conducting an experiment with a hockey stick

Let us fill an empty space with different **"actions"** related to **"a hockey stick"** and you will see how dollar numbers will change accordingly. For example, the cost of **manufacturing** a hockey stick to the Edmonton firm **"Edmonton Skaters"** might be \$100. When **"Sport Chek"** is **purchasing** hockey sticks from that producer it will be paying to "Edmonton Skaters" , say, \$150 per unit . But when **you** are **purchasing** a new hockey stick for your son – you must pay \$200.

You see, nothing really happened to our **"stick"** during the experiment. As a **"thing"** it did not change at all: its physical characteristics and its appearance were the same since the time it was produced at "Edmonton Skaters" shops. But the cost of it was changing every time we applied a different action to it.

Thus, our experiment shows that the cost of a hockey stick crucially depends on an action associated with it. Take away an **"action"** from a **hockey stick** and the cost of that thing will immediately loose its meaning.

## 8. Do "Things " Really Have Costs?: Experiment (Part 2)

At this point our reader can say: " OK. You have persuaded me that *The Traditional Approach* textbooks form in the minds of students the false notion that *"things have costs"*. You have also produced the convincing experimental proofs of that theoretical thesis. On the other hand, *The Economic Way of Thinking* teaches that *"things do not have costs"*, only *" actions have costs"*. Paul Heyne directly talks about that (Heyne, P., Palmer, J. (1995). *The Economic Way of Thinking*, 1<sup>st</sup> Canadian ed., Pearson Education, p. 64). But does *The Economic Way of Thinking* really form in the minds of students

*the notion that “only actions have costs”?”.*

To address this question we had done the 2<sup>nd</sup> survey. 95 students from the Northern Michigan University (USA) and the Hampden-Sydney College (USA) who studied Microeconomics using Paul Heyne’s textbook “The Economic Way of Thinking” were offered the same question which we used in the 1<sup>st</sup> survey: “Do things have costs?”. They were supposed to choose “Yes” or “No” and they were also asked to justify their choice in writing maximum 3 sentences. Before we produce the results of the 2<sup>nd</sup> survey we want to remind our objective reader - who probably did not have a chance to study diligently Paul Heyne’s textbook – that the right answer to the survey’s question is “No” because only “actions” have costs.

During the analysis we will be comparing the results of these two surveys. The purpose of that comparison is to see if The Traditional Approach and The Economic Way of Thinking form in the minds of students two totally different notions about the nature of the “production costs” concept. In the beginning we will pay attention of our reader to the purely **quantitative** side of the students’ responses. Only after that we will make an attempt to evaluate these responses from the **qualitative** point of view. So, let us begin. 18.95% of students participating in the 2<sup>nd</sup> survey had chosen “No” ( which is the right choice). In the first survey only 9.35% had chosen “No”. From the first glance it seems like there is no big difference between these results. But let us go deeper and investigate the content of those “No” responses.

As we mentioned above in the paragraph 4, in the 1<sup>st</sup> survey only 5 students out of 45 were able to explain their choice of “No” in some acceptable way. Among those 5 only 2 provided the right explanation having admitted that “only actions have costs”. In other words, only **0.41%** provided the perfect answer to the question “Do things have costs?”. In the 2<sup>nd</sup> survey 13 students out of 95 produced the perfect answer – which amounts to **13.68 %**. These numbers provide us with the convincing evidence about the substantial **qualitative** difference in the content of students’ responses.

Now let us do the comparative analysis of “Yes” responses. The Economic Way of Thinking teaches us that the concept of **opportunity costs** forms the foundation of the concept of **costs of production** and reflects the deep nature of it. Due to this fact, we will be evaluating students’ responses from that perspective. Thus, only **10.16%** of students participating in the 1<sup>st</sup> survey were explaining their choice of “Yes” pointing out to the notion of **opportunity costs**. On the other hand, **57.89%** students who studied “Production Costs” using Paul Heyne’s textbook were explaining their choice of “Yes” using the notion of **opportunity costs**. We quote below ( with all the grammatical mistakes, unfortunately) the most typical responses of that group of students. Of course, they are not perfect answers but if you analyze them objectively you will not miss in these responses the implicit presence of “actions”:

1. *“ Everything has a cost, the cost of any decision made is the value of the next best alternative. This is called opportunity cost which means that when a decision is made the decision maker loses out on the opportunity of the alternative. This concept is very important to understand if one is to be financially literate ”*
2. *“Yes, everything has a cost. This may be a money cost that you give up, but it does not matter on that. The cost is associated to what you had to give up in order to obtain the good you want, a.k.a. The opportunity cost”*
3. *” Yes, all things have costs. Any decision made, within any circumstance prevails some type of cost(s) to the decision-maker and other people either directly or indirectly involved in that original decision. The specific "thing" is irrelevant in this question, because costs occur within any decision or "thing."*
4. *”Everything has a cost, although it may not be money or any type of medium of exchange, yes. Everything has a cost because there will always be another option for anything that someone is doing. The cost of not making the right decision is depended on the person making the choice what to do and what choice they are making”.*
5. *“I feel that everything most definitely has a costs. There's a cost to obtain things, make things, use things, to do anything. Because of the cost to do anything and everything like I just mentioned, I feel that everything has a some sort of costs associated with it. Nothing is free in our day and age. There's some sort of underlying cost even when things are supposedly free, but they just pertain to another individual besides the person getting the free things”.*
6. *“I believe that all things have costs. Whether it be an actual value cost or an opportunity cost of something you give up. Also, if you value something at a certain point then it is only worth a certain value to you. By this I mean that if someone is selling a book for \$25 and you are only willing to pay \$10 for the book, then the book is only worth #10 to you and that is what you value it at. An example of what I mean by opportunity cost is you decide to stay up late a night before an exam, you fail the exam in result. The opportunity cost of this is the lack of sleep that you get the night before”.*
7. *” Yes, just about anything that you do, or own has some sort of cost. Whether it be monetary or not, cost is what you loose from doing something. If you think about it, you lose something everytime you gain something”.*

Thus, we have obtained the experimental data which says that The Traditional Approach and The Economic Way of Thinking form in the minds of students qualitatively different notions with respect to the concept of costs of production. Only The Economic Way of Thinking forms the true notion that reflects the deep nature of the production costs. We firmly believe that it is time now to dramatically change our approach to teaching Introductory Economics and switch away from The Traditional Approach to The Economic Way of Thinking.

## 9. Conclusion

The investigation of the behavior of our hero John Smith has provided us with the theoretical platform to justify the basic thesis of the article that the traditional economic theory set forth in the popular textbooks on Principles of Economics forms the false idea in the consciousness of students that “**things**” have costs. The Economic Way of Thinking as the alternative approach to teaching Introductory Economics disarms this false notion and teaches that “**things**” do not have costs. Only “**actions**” have costs.

The main theoretical claim of the article was subject to the experimental trial based on the survey of 577 students who studied Principles of Economics at the universities in 7 countries : Canada, Czech, Fiji, Poland, Samoa, Ukraine and the USA. The results of the survey provide us with the convincing evidences about the truth of our theoretical arguments.

The fact that the Traditional Approach forms the false notion in the minds of students that “things” have costs has great importance not only from the theoretical point of view. There are many disagreements related to the determination of “real” costs of things in different spheres of our everyday economic life. These conflicts could be successfully solved if the parties involved could have recognized that “**things**” cannot have costs. Only “**actions**” entail sacrificed opportunities, and, therefore, only “**actions**” have costs.

Some practical advices to those who are confronted with questions about “**costs**”. First of all, before making any conclusions about dollar value of costs we need to ask ourselves “**To Whom**” these costs are applied. Without making our minds about a person who would bear the costs all discussions about costs do not make much economic sense. Secondly, after you figured out the question “To Whom” you must turn your attention to the “**Relevant Action**” which that person will be performing. Because – as you have learned from the above discussion - only “**actions**” have costs. Applying consistently this approach to different economic settings you will form in your mind the proper economic way of thinking about multitude of real life issues associated with “**costs**”.

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