

# An Axiomatic Investigation into the Labor Theory of Value

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23 April 2004

HON 213

One of the key differences between Marxist thinking and classical economic thinking lies in the Labor Theory of Value which Marx used to explain exchange rates (prices) between commodities. As a fundamentally important concept to the field of economics, the theory demands a closer inspection. Being a scientific theory of social interaction, the Labor Theory of Value is founded upon certain assumptions about the way the world works and then is logically deduced (as opposed to being empirically or statistically shown). By translating the theory into axiomatic terms, we can see more clearly the assumptions made, as well as the reasoning behind those assumptions. This will provide a useful way of critiquing the underlying assumptions one by one.

Before the underlying logical structure can be examined, it will be helpful to define the Labor Theory of Value in a less formal way—as Marx originally explained it. The classic analogy first suggested by Ricardo was the case of a society of hunters. Suppose these hunters have only two types of prey: beavers and deer; and that on average it takes two hours to kill a beaver and one hour to kill a deer. In this scenario, there is only one stable condition of equilibrium where the exchange rate of beavers for deer is one beaver for every two deer. If hunters could exchange them one for one, there would be no rational motivation to hunt beavers—in order to get a beaver, a person could simply kill a deer in less time and exchange it on the market. Obviously, everyone could not use this method simultaneously, so an increase in the exchange rate would tend to occur. Similarly, if the exchange rate became higher than two to one, then no one would hunt anything except beavers. Thus, for Marx, the value of commodity in the market is determined by amount of labor which is used to produce it.

There is immediately one obvious objection: where does demand factor into the equation? What if people simply *like* one commodity more than another? Marx's response is based on his psychological view of people as they relate to the economy. Demand is not what drives production; it is production which drives demand. People develop a fetish attitude towards commodities as they become more and more separated from the actual production process. People no longer see their DVD players for what they are—the result of hours of labor—in the way that someone understands something they have produced through their own labor. Trends in fashion are a good example of how this works: new products are created, and despite the fact that no one needs them, the demand exists (think the “thneed” from Dr. Seuss's “The Lorax”). That being said, perhaps Marx's working is the best: “A commodity, therefore, is a mysterious thing, simply because in it the social character of men's labor appears to them as an objective character stamped upon the product of that labor; because the relations of the producers to the sum total of their own labors is presented as a social relation, existing not between themselves, but between the products of their labor.” (Capital Volume 1, pp. 83)

In order to expand on this common sense way of thinking about the theory, translating the relevant language of the theory into the structure of formal logic will help us examine its value more closely. Marx's most careful and explicit wording of the Labor Theory of Value is the following: “A use-value, or useful article, therefore, has value only because human labor in the abstract has been embodied or materialized in it.” (Capital Volume 1, pp. 45) There are several undefined terms needed to talk about the Labor Theory of Value in an axiomatic system: labor, people, exchange, possession/ownership, commodities and production. These undefined terms are the key

terms of the underlying axioms of Marx's theory. These underlying axioms are the following:

1. People exchange commodities to maximize possession.

This can be accepted as a basic assumption about the capitalist system.

Maximization of utility (use, profit, or possession) is the basic motivation behind free-market activity. Marx agreed that this was how the capitalist system worked, he simply argued that this was not the *only* way in which an economy could operate effectively.

2. People produce commodities through labor of varying quality.

This axiom needs little motivation. Even things that are naturally occurring commodities, such as firewood, still require labor to go out and collect them. There are some people who are better at some types of work and there are some who are incapable of certain types of work.

3. Every unit of labor is associated with a particular person.

This axiom has a similar motivation to number two. If a job has been done, then somebody had to have done it.

4. There are at least two commodities which are produced by different amounts of labor.

This axiom is necessary for the idea for exchange to work. If there is only one commodity, then everyone will just produce for themselves alone. Clearly, in the real world, there are nearly an infinite number of commodities.

5. A commodity is owned by the person who produced it unless exchanged to another person.

This seems to contradict the idea of wages, but in fact, wage labor is an agreement to sell the product of your labor to your employer in exchange for your wage.

6. People may use labor to produce any commodity.

This is an axiom of job mobility. In a pure capitalist system, there cannot be caste occupations or other impediments to changing jobs. This means that people will specialize in whatever they produce best relative to other people.

7. A commodity, if produced, has demand associated with that commodity (someone will want it). This is the axiom of the fetish nature of commodity goods.

These are, essentially, the only axioms necessary to talk about the Labor Theory of Value in a logical system. It must be emphasized that these are not explicitly stated by Marx himself; however, these can be inferred from his argument as unstated assumptions. Most of these are the assumptions that classical economists took for granted. Number seven is the only axiom which is specific to Marx. This, however, does not mean that the other axioms will be free from scrutiny; it just means that any criticisms of those axioms will be a criticism of economics as a whole.

The problem with this method is that, when dealing with human agents, it is much more difficult to propose axioms which are universally acceptable than in hard sciences and mathematics. There may or may not be some a priori sense of what determines human behavior, but there is by no means a standard view. Given two different views of how humans behave, there might be two wildly different theories about the structure of labor markets (or economies in general).

In another sense, however, this “axiomization” will help us examine each assumption in isolation. In mathematics, a theorist need not justify an axiom that is

sufficiently simple since it is taken as a fundamental truth that must be understood prior to engaging in logical discussion in order for communication to take place. Marx, on the other hand, must justify each of his undefined terms and axioms (using reasoning outside the system itself) before he can even proceed with any theorizing about their implications.

Labor is perhaps the most obvious undefined term that is needed. It is also, potentially, the most problematic. According to Marx, labor can be abstracted into basically quantifiable, interchangeable units. For example, if it takes two man-hours to build a chair, that is a constant rate which can be repeated again and again by the same laborer. A skilled laborer might be able to complete the chair faster, say in one hour, but a conversion could easily equate the two. One unit of skilled labor equals a greater number of units of abstract, general labor. Put another way, if Bob can make two chairs in an hour, and Joe can make one chair in an hour, then Bob's skilled labor is worth two units of Joe's unskilled labor. This concept allows for easy generalizations about labor and production which yield easily quantifiable results.

There are several problems with this definition of labor. For example, a laborer might prefer one type of work over another—there is no accounting for enjoyment (or disgruntlement) in a particular line of work. This tendency is not easily quantifiable, and does not seem to be reflected in the model.

Labor might also not be as easily convertible from skilled to unskilled labor as Marx suggests. There are some cases where unskilled labor simply *cannot* achieve the same results as skilled labor. No matter how many unskilled guitarists you put up on stage, you will never get the same result as a very highly skilled guitarist. Even if you

had a million workers, if none of them knew anything about atomic energy, you would never get a nuclear power plant built.

Despite these problems, I think labor can pass the test as a reasonable abstraction for use in the axiomatic system. As Marx pointed out, the purpose of creating models is to explain a very specific aspect of reality. As we get more and more abstract, the more we deviate from reality, but the goal is to isolate only the particular aspects which are necessary to explain the phenomenon we are interested in.

Commodities are another questionable undefined term due to Marx's own views on how the term should be understood. Commodification is not necessary in the Marxist world view. Commodities become commodities when they are exchanged in a market not when they are produced. If we are to have a useful model, we must abandon Marx's view of commodities as fetish objects resulting from specialization of labor, and adopt the more common view of commodities as simply useful products of labor.

The first axiom, that people seek to maximize what they possess, is an assumption that has been debated throughout the field of economics. In any form, the maximization of profit, utility, or any other similar concept of human behavior is simply not able to capture the range of human behavior. There are plenty of people in the world who do not choose to devote their lives to gaining the most possessions that they possibly can. A psychologist who proposed the theory that all human behavior has the goal of gaining possessions would look ridiculous. Marx's theory of human behavior is perhaps too simplistic to cover the range of choices that people make.

On this point Marx could respond that most people *do* act as self interested economic agents, even if there are a few rare exceptions. What his theories attempt to

explain are large scale, epochal and social phenomena. The decision of some hermit to live a simple life is beside the point. Most people fantasize about owning five luxury SUVs and having a bigger house than all their friends. It is the result of the capitalist system of competition that people are never satisfied with what they possess. The reason that some people do not share this goal is because they are somehow disconnected from the society at large. It is not that such people are crazy (in fact they are the only sane ones, for Marx), they simply have not had the capitalist ideology ingrained in them to the degree that most people have.

The idea that each person's labor is separately quantifiable (axiom 3) can be disputed. Cooperation and the division of labor create a total product of labor which is often larger than the individual products of labor combined. For example, an assembly line of fifty can make cars much faster than fifty people working individually can. How can this axiomatic system take into account the surplus product? Which laborer is more important in creating that surplus? There is no way to tell.

Marx's model of labor seems to apply only to isolated workers who own their own capital. He seems to be the least prepared to deal with increased productivity through cooperation. He claims to have a theory that describes value in a developed capitalist society, yet he neglects to develop his theory beyond self employed hunters in a two commodity market.

His concept of commodity fetishism, converted into the seventh axiom, represents the basic split from accepted economics, and perhaps his weakest point. It is clear that, to some extent, people have a demand for things which have no inherent value; however, it seems this is always the case. A man who was dying of thirst in the desert might trade



his car for a glass of water. This is a perfectly reasonable decision—he can't enjoy his car if he is dead, but at the same time the exchange does not reflect the amount of labor that went into creating each.

At the same time, Marx can counter this as a misinterpretation of the theory. The fetishism of commodities is a product of advanced capitalism, where all basic needs are met. It is only *after* we have food, water, and shelter, that we begin to fetishize other commodities. These are biological, natural necessities, so of course they will be the first priority. Marx is interested in the consumer culture developed by advanced capitalism.

Mathematical, logical thinking is the basis of scientific inquiry. The goal of any scientific theory which attempts to explain the world around us should attempt to relate it to a logical system as a way of clarifying implications. Marx's theory is very well thought out, but it is based on axioms which are, in some cases, highly debatable. The Labor Theory of Value in particular, seems reasonable when one is led through the thought process. The problem is the starting point. Flawless reasoning is only as good as the assumptions upon which it is based, and Marx has based his theory on fairly strong, but hardly self-evident assumptions.

Reference:

Marx, Karl. Capital: a Critique of Political Economy. Volume 1. Charles H. Kerr and Company. Chicago: 1908.