QANTITY THEORY OF MONEY

Quantity theory is a great theory. It is formulated on sound lines. To understand this theory, study of two important Laws- Law of Conservation and Law of Mass Action (of reversible chemical reactions) would be prerequisite. It is also necessary to study Utility Complex. A discussion is presented here in support of this Theory.

Law of Conservation is Universal Law and is a master law that is applicable to matter, energy, wealth and soul (if one believes Bhagavad-Gita). Law of Conservation of Mass and energy are proven laws. Though untold, Law of Conservation of Wealth is a proven Law based on which entire gamut of Double Entry Bookkeeping method of Accountancy rests. Law of Conservation, stated on lines of Law of Conservation of Mass and Energy, can be stated as " When wealth changes from one form to another, the value of wealth of transferee form equals value of wealth of transferor form and that wealth can neither be created nor be destroyed but can be changed from one form to another". In Quantity Theory, we are referring to change of wealth from goods and services to money and from money to goods and services. According to Law of Conservation, value of goods and services should be equal to value of money. Since Law of Conservation is a trusted and proven law, Quantity Theory should also be foolproof.

It may be observed here that wealth changed in two directions. In the hands of the seller, goods and services are changed into money. In the hands of the buyer wealth in the form of money is changed into wealth in the form of goods and services. In chemistry such reactions are called reversible reactions. All economic reactions (where wealth changes from one form to another) are reversible in nature and this is the reason we have a debit for every credit in Double Entry Bookkeeping. The basic equation of Quantity Theory should undergo change.

$$MV=PQ$$

Where M is the stock of money, V the average number of times the money is used, P the price index and Q the goods exchanged for money. In the preceding paragraph, we have discussed that all economic reactions are reversible. Hence every time money is used or in other words, every time wealth in the form of money changes to wealth in the form of goods and services, a reverse reaction takes place i.e. wealth in the form of goods and services gets changed to wealth in the form of money. Hence the factor V has no significance. If economic reactions were not of reversible nature, Double Entry bookkeeping would have lost all its credibility.

A Law called Law of Mass Action is applicable to all reversible chemical reactions. This Law states as follows: "In any reversible chemical reaction, the rate of reaction is directly proportional to the product of the concentration of reacting substances expressed in Moles/liter". If the concentration (or quantity) of reactants increases, the rate of forward reaction increases. In other words more units of reactants get changed into products. If concentration of products increases, rate of reverse reaction increases, which means that more units of products change into reactants. The equilibrium constant, K, here is given by:

$$K = \frac{[A]\,[B]}{[C]\,[D]}$$ where A and B are reactants and C and D are products.

This law is applicable to ANY ECONOMIC REACTION you can think of. To cite a few;

1. Goods + services → Money
2. Capital→ Returns
3. Houses→ Rent
4. US $→ Rupee
5. Liquidity or face value→ investment or maturity value

In all the above, if quantity of reactants (Those on the left hand side) increases, more units of reactants get changed into products and their relative value in terms of products decreases (K). Let us see equilibrium constants in the above reactions.

1. K= Money/Goods and services OR **PRICE**
   If money supply increases prices increase (as numerator increases value increases). This is true with other economic reactions as well.
2. As capital increases Returns/capital decreases (Remember Law of Diminishing Marginal Returns).
3. As houses increase in number, rent per house decreases.
4. As US $increases, Rupee per US $ decreases.
5. As liquidity increases, K, the compounding factor, decreases. Compounding factor is a function of rate of interest. As liquidity increases rate of interest decreases.

In all the above reactions we found that if quantity of one form of wealth increased, its relative value in terms of other form of wealth decreased, owing to solely, LAW OF CONSERVATION. Thus by increasing money supply prices should increase. But before coming to further conclusion, one must study the UTILITY COMPLEX. What is the utility complex?

Marshall, in his demand and supply analysis, introduced the concept of Utility. In this paper, a little modification is made as to what constitutes Utility. **Utility is all that a human being needs**. This is a form of wealth because this utility can be expressed in units of wealth and can be changed to other forms of wealth. One more character of wealth (this is applicable to matter and energy as well) is that wealth moves from higher concentration to lower concentration. Utility also moves from higher concentration to lower concentration.

Comparisons help us understand complex subjects with ease. Poets use simile and metaphor to bring home an idea or a concept. Here a comparison between water and utility is of utmost importance to understand the composition and properties of utility. 1.Water is a form of matter and so is utility a form of wealth. 2.Water is regarded as Universal solvent in which many other forms of matter dissolve. So is utility a universal solvent in which all other forms of wealth dissolve. 3.Water, though consists of two atoms of hydrogen and one atom of oxygen, in reality it will be in the form of H+OH (one hydrogen ion with a positive charge and one hydroxyl ion with a negative charge). Though utility is a single form of wealth to look at, it comprises of two forms of wealth: the first being goods and services that are called WANTS by economists and the second consisting of money and money related forms of wealth that are called MEANS by economists. We may or may not assign charge to these forms of wealth i.e. Means and Wants. 4.Water exhibits cohesive and adhesive properties, and so does utility. Utility

attracts utility and utility attracts other forms of wealth. Utility is a good adhesive agent for many forms of wealth.

Now having learnt the nature and properties of utility, one can understand equilibrium mechanism operating in Quantity Theory of Money. Any economic entity, be it an individual, a family, a society, an organization, a business enterprise, a state or a nation, constantly strives for equilibrium between wants and means. Every economic entity tries to bring about parity between means and wants. In the very first chapter of economics one studies the objective of study of economics. Study of economics clearly spells out the methods one can adopt to bring about equilibrium between wants and means and to maximize satisfaction. According to Law of Conservation, the value of Means should be equal to value of Wants. According to law of Conservation, value of demand expressed in commodity/money terms should be equal to value of supply expressed in commodity/money terms. True equilibrium state is a rare phenomenon and the reason for this is explained below with a story.

There was a youth sleeping under a tree on a warm afternoon. A man in middle age saw the youth sleeping idly and was annoyed. He started preaching the youth the importance of hard work. The youth enquired about the benefits of hard work. The elderly man answered the youth " By working hard you will earn money. This money will help you buy your necessities. You will be prompted to do more work. You will amass wealth. You will employ servants to attend to you. You will be your own boss. You can eat, rest and sleep at your will". The youth laughed and said, "What I am doing now?" The story ends there. But had the youth acted upon the advice, the story would have found no end.

A man, working say, as a clerk, aspires for promotion in his career. In his view, promotions would enable him earn more money thereby he can meet his needs (wants). It is also in his mind that by getting promotion, he would be his own boss. It will be in his mind that he can lead a peaceful or rather lazy (Economically or physically or both) life. Let us assume that his dream comes true and the man gets frequent promotions and reaches the top. As he moves up in his career, no doubt that he will have men at his beck and call and all the money to satisfy his wants, he will become more and more active economically and physically. As one approaches true equilibrium state i.e. the gap between wants and means getting narrower, one will become more active physically and economically. The richest man in the world or the person holding highest post is the most active person in the world. The developed countries like America and Japan are perhaps the most active countries in the world. This phenomenon is also noticeable in philosophy and chemistry.

There are eight elements in this universe with perfect electronic Configuration. They are rightly called INERT GASES. Those elements that have electronic configuration nearer to that of an inert gas are most active (chemically) elements on the earth (e.g. sodium, fluorine, potassium etc.). The elements like gold have electronic configuration far distant from that of an inert gas and hence they are least active chemically. Even a tri-acid mixture containing sulfuric acid, nitric acid and hydrochloric acid has no reaction with gold. A primary school teacher or a clerk in a government office is far off the post of top management and hence he/she is least active career wise, economically and physically as well. The thinner the membrane separating one from true equilibrium gets, the more active (physically, economically, psychologically, and

philosophically) one gets. This is a universal phenomenon. As wants and means tend to equalize, the economic entity (be it an individual or a family or a society or a business firm or a state or a nation) becomes vigorously active. When wants increase means also increase. The increase in means may be by way of additional resources put into economic use or by resorting to loans and advances or by deficit budget in case of a country. When means increase, wants also increase and this stimulates production of goods and services.

It is wrong to say that this law should be studied in macroeconomics alone. This law is omnipresent. This law is basic and applies to all branches of economics. Goods and services should be construed as "wants" and money and money related forms of wealth as "means". This reaction is taking place every where- be it with an individual, a society, a business firm, an association, an organization, a state or a country or globe in the largest perspective.

Now, it would be proper to study collectively, the Quantity Theory of Money and Law of Diminishing Marginal Utility. Like Quantity Theory, Law of Diminishing Marginal Utility is also based on Law of Conservation. It also tests positive with Law of Mass Action. Hence this theory is also foolproof. A discussion is presented here below to prove this Law.

In the previous part of the paper, it has been proved that utility is a form of wealth. It is also stated that utility can be expressed in units of wealth. Let us assume that a man is hungry and he needs 5 apples to satisfy his hunger. The utility here can be expressed in units of apple as 5 apples. Suppose he is served with only one apple and that he is not given any understanding that some more apples shall be served to him, he equates his hunger with one apple though he actually needs five.

1 Utility (5 apples) = 1 apple (DUE TO LAW OF CONSERVATION)

Applying Law of Mass Action, the equilibrium constant K here is,

$$K = \frac{\text{1 utility or 5 apples}}{\text{1 apple}}$$

K here is Marginal Utility. Now imagine that he is served with one more apple, at this stage, his utility expressed in units of apple is 4 (Since he has consumed one apple already).

The marginal utility or equilibrium constant K here will be,

$$K = \frac{\text{1 Utility or 4 apples}}{\text{1 apple}}$$

We notice that with every successive addition of apple, Marginal Utility is diminishing. Thus like Quantity Theory of Money, another much criticized Law i.e. Law of Diminishing Marginal Utility is also proved to be scientific and flawless. Only thing here is that one should view utility is a form of wealth and should use units of wealth to express utility.

Thus, Quantity Theory of Money is a foolproof Theory having its roots firmly grounded on Law of Conservation of Wealth. This Theory also tests positive with Law of Mass Action of Reversible Economic (Chemical) reactions. Utility is form of Wealth and consists of two components: A) Goods and services which are otherwise called WANTS by Economists and B) Money and money related forms of wealth which are called MEANS by Economists. Thus, when one substitutes goods and services by **wants** and

money and money related forms of wealth by **means** in the Quantity Theory, this theory encompasses entire economics. There can never be a situation of true equilibrium. As wants and means tend to equalize, there will be increased economic activity. By increasing means (money or money related forms of wealth) equilibrium will be nearer and therefore there will be increased economic activity. Thus by resorting to deficit budget, a source of increasing money, the economy turns vibrant. Hence it is advisable to go for deficit budget.

This theory also helps us to classify wealth in two broad classes: WANTS and MEANS. They can be further classified as present and future wealth. Further study in this regard as to how scientifically we can classify wealth (on the lines chemists classify matter and biologists classify living matter) should be attempted to.

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